

The Dental Digest.

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Original Contributions.

AMALGAM AND CEMENT FILLINGS.

By W. E. DRISCOLL, D.D.S., MANATEE, FLA.

In the April DIGEST Dr. S. B. Palmer, under the head of "Improved Amalgam Fillings," says: "Introduce the filling as quickly as possible, so as to force out any excess of cement. Dry the cavity borders and fill as usual. With this lining there is no thickness of cement to wash out, nor is there a space for fluid circulation to cause the chemical shrinkage mentioned."

This is the longest reference to lining cavities with cement that I have ever seen in a dental journal, except what I have contributed during the past nine years. If the general understanding of the matter is as faulty as I take Dr. Palmer's reference to it to be, I am not surprised that no one writes on the subject, or that one would surmise there was no such thing practiced, so far as the dental journals refer to the question.

Dr. Palmer may know of a cement that will wash out from under an amalgam filling, but I do not, though I know of several that will not do so. I do not understand his fear of getting too much cement under an amalgam filling. It may be possible to make cement so thin that it would wash out if largely exposed, but I cannot see why anyone would practice such a plan. If the pulp is not exposed there is no objection, according to my observation, to mixing the cement lining as stiff as will allow time to press in a block of amalgam before the cement loses its stickiness. The protection the amalgam covering gives to the cement causes it to harden far beyond any cement filling left in a cavity with no protection.

I will repeat what I have said before. The silence of the dental journals on the subject of cement linings for amalgam and gold fillings is one of the wonders of the times. I have not inserted an amalgam filling for eight years without cement under it. And I have often written that I believed the time would come when the insertion of amalgam in cavities without cement or other suitable lining would be considered malpractice. I expect to be compelled to make a trip of nearly one thousand miles to reach a dentist who knows how to do this kind of work right, whenever I need to have my own teeth operated on. There may be others who understand the matter, but if they should write as Dr. Palmer does, I would say that they have had no such success in lining cavities with cement as I have had for nine years past.

REMOVAL OF PULPS, AN IMMEDIATE AND NEARLY PAINLESS METHOD.

BY F. J. FESLER, D. D. S., LOWELL, MASS.

The writer, during a practice of seventeen years, has seen published in various dental journals many articles which it seemed everyone should be familiar with, methods which I had been using in my own office for years. The fact, however, that these means and methods were not new to me, did not prevent the authors of them from conveying something of help to some younger or less experienced men in the profession, who had not had their attention called to the particular point in question. This may be the case with what I am about to write.

Some men may be able to tell me something better for destroying the pulps in teeth, but with me it works so satisfactorily that I wish others, who may be progressing in the old way taught at the colleges and in the text-books, to be benefitted. If I can help even one practitioner, and I am sure I will reach many who as yet have not adopted this method, I will accomplish all I desire. Some of the more conservative will probably criticise me for using so strong a mixture. I will not ask them to use more strength of solution in all cases than they find necessary, and am myself ready to accept any suggestions that tend towards improvement, if backed up by the experience of a fair number of cases and not by mere speculation. With this preface, and a hope to read in

the near future the experiences of other men, either as the outgrowth of ideas from this article or original suggestions of their own, I will tell you as briefly as possible what to do when you meet that formidable little enemy, a live or partially live pulp.

Go to your druggist and ask him to make a solution of muriate of cocaine in this way. Take a test-tube in which ten grains of muriate of cocaine have been placed, and add one drachm of distilled water, then bring to a boil, cool and place in a vial for use. You can do this in your own office if you choose. Now when occasion presents itself, put the rubber dam over the tooth to be operated upon and tie it, or in some way make it so tight that none of the solution will go through into the mouth or on the gum, and I think a clamp is the most reliable to prevent displacement by any sudden movement of the patient. If the pulp be alive and not exposed, so that it cannot be readily reached with a hypodermic needle, take a small drill, the same size as the needle, and open just to the pulp. Then take into your syringe a quantity of the cocaine solution and place one or two drops in the cavity in such a way as to numb the pulp to the entrance of the needle. This can usually be accomplished in one or two minutes, so that but a very little pain will be felt on entering the needle, say a thirty-second of an inch into the pulp. This may also be accomplished by touching the exposed pulp with a 95 per cent. solution of carbolic acid.

Now after entering the needle use gentle pressure, injecting the solution and pushing the needle further into the pulp as fast as sensation is lost. The whole operation of anesthetization may be completed in from three to five minutes, so that a hook broach can be carried to the end of pulp-canal and turned around, thus amputating the pulp, to be afterwards removed with a barbed broach, by a broach wound with cotton, or in any way you may see fit. Any hemorrhage may be stopped with carbolic acid.

I am in the habit of filling my hypodermic syringe, then place it in position, the needle point just at the entrance to the canal, and while it is held in that position place enough of Gilbert's temporary stopping, which has been previously warmed, around it to fill the cavity. This is applicable to those cases where the nerve is partly alive, receded, or the cavity is so large as to allow much of the liquid to flow back and so not enter the pulp. It

will be found necessary where the pulp extends to two or more roots, so that enough pressure from the syringe may be exerted to force the solution throughout them all, or each root may be treated separately. Each case will present conditions requiring slight differences in manipulation which will readily suggest themselves. The operator should always use care if he has any cuts or abrasions on his hands that the solution does not get into them, and the hands should be immediately washed if free from cuts.

The filling may be inserted at once in all cases where the pulp has been immediately exposed and removed, or where the upper half of the pulp was healthy when removed, although it might be well to treat the last named case with a little carbolic acid or other antiseptic. There are many cases, particularly of lateral incisors, which present so little space to anchor a temporary filling, that this method is far preferable, and as the permanent filling can be immediately inserted, considerable experiment is warranted. Of course one should be very cautious, if the least suspicion of a large apical foramen be present, that none of the material be carried through into the surrounding tissues.

Some may question whether the action of the cocaine is not injurious to the tooth. Well, five minutes of cocaine is not equivalent to hours of arsenical preparations in bone and nerve tissue, to say nothing of the hours of pain while arsenic is encased within a tooth. Had I known the benefits to be derived from this method years ago it would have been a priceless boon to me, besides being a great saving of time and pain to my patients.

AN ACT OF DENTAL UNCLEANLINESS.

By A. R. CHURCH, D.D. S., CHICAGO.

Many dentists are extremely careful to have their instruments thoroughly sterilized after every operation. They wash their hands carefully and have their nails manicured, but use modeling compound and wax for impression work from mouth to mouth until it becomes fairly filthy.

Science has shown that the mouth is almost a perfect incubator for the growth of micro-organisms of all kinds. What an injustice men of our profession are doing the public in transferring germs of disease from one person to another in this manner.

If infection can be carried on the small point of a delicate excavator or lancet, what a risk a practitioner of dentistry runs in placing a mass of compound in the mouth, which has been used, for instance, on a syphilitic patient. Some may say the excavator, scaler or lancet is a different thing, for it comes in actual contact with wounded and bleeding tissues, while the impression material does not. How about partial impressions taken after removal of deposits on remaining teeth, after extractions, and after the preparation of roots for crown or bridge work? Even if the tissues be not wounded, what dentist with his knowledge of bacteriology would run the risk of placing in his own mouth a substance which has been used on a patient having *Pyorrhœa Alveolaris*? Aside from danger from infection, which one of your patients would knowingly consent to your using compound or wax which had been used in the mouth of another, no matter how clean or healthy the mouth may have been?

I do not think modelling compound can be sterilized in the short time it is in contact with warm water. To destroy the life of many germs it would have to be boiled for such a length of time that the material would become useless. Wax may perhaps be rendered aseptic by long boiling, but this is not done by the majority of dentists, very seldom by any until it becomes necessary to eliminate plaster.

All colleges should teach students that it is almost as dangerous to use compound twice as it is to use instruments without being properly sterilized.

If some one better qualified to treat this subject than myself will devote some of his time to it, this short article will have served its purpose. It seems to me fully as important as many of the subjects recently brought before the notice of the profession through the journals. Much has been written on care in sterilizing almost everything we use in the office, even to the operator's coat, but little or no attention has been given to impression materials. It is of little use to sterilize your impression cups if the contents are not also pure and clean.

All dentists may not be guilty of uncleanness in this respect, but I believe the majority are. Among them are many who are very critical on other points in office practice.

Digests.

The Medical Standard for May, 1896.

"FRUIT DIET DURING PREGNANCY." There is a theory that in proportion as a woman subsists during pregnancy upon aliment which is free from earthy and bony matters she will avoid pain and danger in delivery. Hence the more ripe acid fruit in particular, and less of other kinds of food, particularly of bread and pastry, of any kind is consumed, the less will be the danger and suffering from childbirth. Dr. E. A. Geer finds that the fruit diet benefits the mother at the expense of the child, which is born rickety.

Dr. E. Page of Boston, Mass., reports good results from a diet consisting chiefly of fruits (especially the sub-acid kind) and vegetables plainly served, interdicting the use of pies, pastry, cake, tea and coffee, a good degree of exercise, air bath for a few minutes on rising and retiring, a cold sitz bath of ten to thirty minutes on rising, great moderation in sexual indulgence, treating the "morning sickness" as an ordinary indigestion. A lady writes to *Babyhood*: "I gave fruit diet a thorough trial in the hope of finding labor painless, but do not see that it made any difference in regard to the labor, although my general health was good. But the poor baby—from the time he was six months old until he cut his last tooth there were days of fretfulness and restless, wakeful nights. Every tooth had to be lanced. He is now, at the age of seven, a slender, nervous, fretful child, while his two little brothers, not fruit-diet boys, are sturdy and serene." When a woman is in the best physical trim she is in the best condition to have as painless a labor as she can have. Any physician who has a fairly large experience knows that it isn't the size of the foetus nor the degree of ossification that constitutes the chief element in difficult labors. Many a mother has her hardest labor with her smallest child. If the mother is so fed that the child can get what it needs without drawing on the teeth, bones and nervous muscular system of the former, if she exercises sufficiently to keep herself and the foetus from becoming obese and her muscles from becoming flabby and inadequate to the exertion of labor, there need be but little

worry. In cases where indicated, the mother should be fed on chalk and ground bone, with the most excellent results as compared with her other pregnancies. Dr. E. Smith, of Oxford, Kan., relates a case in which a woman was booked to have a fœtus with soft bones and yielding cranium, as she had abstained from bone-forming food. She lost her teeth during gestation. The fœtus had united cranial sutures and had to be delivered with forceps.

Pacific Stomatological Gazette for May, 1896.

"NATURAL ENAMEL INLAY," by A. H. Wallace, D. D. S., F. C. S., San Francisco. The large, unsightly, restoration gold fillings in front teeth, which were once thought to serve as monuments to the dentist's skill, are familiar to all of us. They are put in at a sacrifice of the personal appearance of the patient, who will soon realize that there is something at hand which will replace gold for the front teeth. Therefore, the time will soon come when our patients will demand porcelain work, and natural enamel where it can be done, which will then entirely supersede gold. With our dental furnaces for baking porcelain it is very easy for us to put in a porcelain filling approximately the color of the tooth, but how much more beautiful is the natural enamel with its life-like lustre and natural contour?

Many skeptics will question the durability of such work, and cite the decay of the enamel, the washing away of the cement, and the breaking away of the inlay from its anchorage as objections. The first of these objections is very well taken, for the enamel is liable to decay; but if it should decay in three to five years (and I say this would be a good limit to healthy enamel), take it out and put in another piece, and the patient will be well repaid for the years he has been exempt from the glare of gold. The other objection—the washing away of the cement—cannot be considered as such, as there is no cement to wash away in a properly fitted inlay; and if there is, watch it, and have it replaced before the decay commences. The last objection, breaking away from its anchorage, is liable to occur if we use poor cement and are careless in its mixing and setting; but this will never occur in proximal cavities where the cutting edge is not involved. In cases where the cutting edge is involved to the extent of one-half or one-third of the tooth, resort to a gold pin for better anchorage.

An inlay is applicable to four kinds of cavities: proximal cavities in the front teeth, with or without involvement of the cutting edge, in labial and buccal cavities. When the cutting edge is not involved, and inlay well fitted, it will last a lifetime. When the cutting edge is involved the case becomes of a most serious character, and inlay depends wholly on the anchorage for its stability. In this event I make the inlay as large as possible, without cutting away too much of the tooth, and make a perceptible shoulder at the cervical boundary.

On the labial surface, when properly fitted, the inlay will last longer than gold. In a case where I have restoration of one-half or one-third of a tooth, I depend on one or two gold pins for anchorage, and the placing of a whole natural tooth-crown on the front teeth is very effective.

The advantages I claim for this are: *first*, the natural color assumed from three days to two weeks after the operation, the same as implanted teeth; *second*, the natural contour of the tooth restored; *third*, strength, non-friability; *fourth*, the artistic value when properly done.

The methods I sometimes use to obtain these results are, *first*, rotation of the tooth with ligature (Younger's method) so as to bring the mesial surface to the front; spreading the teeth with cotton tape; porcelain inlays in small cavities; and, if tooth is dead or discolored, bleaching to normal color with pyrozone.

In selecting a tooth to cut inlay from, care should be taken to get a tooth nearly the size and shape of the one to be operated upon. This can be determined by the aid of calipers. After selecting the tooth, give it a bath of iodine to cleanse it and then let it remain in a solution of bichloride of mercury (1 in 2000) for twelve hours. The *modus operandi* after this is to grind with fine stone to approximately the size, then mount it with shellac to an instrument so as to give access to cavity.

A perfect fit can be obtained by smearing the cavity with rouge and oil, and by placing the inlay in it, grinding away a little of the inlay at a time just where it comes in contact with enamel walls. After it is fitted, wash out cavity with soap and warm water to remove oil, then thoroughly dry and, using best cement, cement to place, care being taken not to displace inlay

after it has begun to set. Trim off so that inlay will not strike antagonizing teeth, and you will have a filling that will last as long as gold, and will be a pleasure to yourself and your patient.

"DENTAL JURISPRUDENCE, ANESTHESIA," by H. R. Wiley, A. B. San Francisco. It is a well-settled principle, both in this country and in England, that any person in the practice of his profession is required to possess and use ordinary skill, and to exercise ordinary care.

To determine just what constitutes ordinary skill, and to determine whether or not a dentist, in a given case, has exercised ordinary care, are questions which the courts have found to be attended with considerable difficulty. That which might be held to be ordinary skill under certain conditions, might under other circumstances be regarded as ignorance; and a degree of care that might be considered ordinary in the simpler operations of dental practice might justly be regarded as negligence when applied to the management of an operation attended with a high degree of danger to the patient.

The law admits that a qualified practitioner of dentistry has the right to administer anesthetics, but it will inquire searchingly as to his knowledge and his methods, as well as to the degree of care exercised by him in administering them. Unless a dentist knows himself to be well qualified in this branch of practice it is best that he procure the services of a physician to make a preliminary examination of the patient's physical condition, relative to the use of the particular drug that he intends to administer, and to note, also, the effect upon the patient while being put under its influence. This rule a dentist should observe as a duty both to himself and to his patient, and he disregards it at his peril. A dentist may, himself, safely undertake to administer an anesthetic only when he has a thorough understanding of its physiological effects, and knows himself to be fully conversant with the most approved methods of administering it. This the law holds to be ordinary skill.

"Ordinary care" in the use of anesthetics means great care.

If, in the opinion of the dentist, the operation is one that the patient may easily undergo without the use of an anesthetic, he should advise against its use. If it is decided to resort to anes-

thesia, then, if nitrous oxide gas will suffice, it should be used, as it is considered less dangerous than chloroform or ether. Out of the hundreds of thousands to whom nitrous oxide gas has been administered since it came into general use in the medical profession, only thirteen fatal cases had been reported prior to the year 1892. This is a small number of deaths compared to the lists that are recorded against either chloroform or ether.

Before administering an anesthetic the dentist should carefully examine his patient, especially with reference to faulty circulation, and if, in his opinion, there are good reasons for not using the drug he should firmly refuse to do so.

The law would hold a dentist unskillful or negligent if he administered cocaine to a nervous and hysterical person or to a pregnant woman.

The dentist should always have at hand the usual restoratives, such as brandy, aromatic spirits of ammonia and nitrate of amyl.

"EROSION AND ABRASION," by Dr. L. A. Teague, San Francisco, read before the S. F. Dental Association, May 11, 1896. In my treatment of this subject, viz., the agencies that cause the wearing away of tooth structure, I also touch upon one that is said by some to be kindred to erosion—that is, atrophy of the teeth; and, if it will serve to bring out the truth as to the cause of these diseases, I will, for the sake of argument, throw down the gauntlet and claim that they are not congenital, but the result of sickness during dentition in the case of atrophy, aciduous agencies in erosion, and mal-articulation in abrasion.

In the February No. of the *Gazette* appeared an excerpt from the *Items of Interest* anent "Abrasion of the Teeth and the Tooth-brush," and as I read it I was struck with astonishment at the absurdity of some of the crimes that were attributed to tooth-brush and powder.

To begin: the wasting away of the tooth-substance *attributed* to the brush is not abrasion, but erosion—an eating away, by caustic or aciduous agency, of the enamel and dentine of the teeth. I am aware that this insidious disease has been diagnosed by some writers as resulting from mechanical agencies, such as scraping, shaving, rubbing or wearing of one hard substance by friction against another. But that convenient reason will not do;

it is not scientific, it is not reasonable, and it is only plausible to those who do not stop to think and put two and two together. It will do for us to tell to those who inquire, when any answer will satisfy their curiosity. In fact, if we gave a woman's answer and said simply "because," it would as a rule suffice; but such answers will not do for those who, by observation and experience, are forced to the conclusion that a tooth that was never introduced to a tooth-brush could not possibly be contaminated or abraded by contact with it. Listen to this from the excerpt: "It is a shame to see the destruction of so many sets of nice teeth from this cause, and that of people who are taking special care of their teeth. It is still more especially a shame and a disgrace to the dental profession, because nearly all this sacrifice of beautiful teeth is by order of some of our most popular dentists."

Now, then, show me a mouth that knows no tooth-brush and I will show you a condition of things ten, yes, a hundred times worse than that of the mouth whose teeth are brought in vigorous contact with the brush once or twice a day. I will show you gums that are in an inflamed condition, loose around the necks of the teeth, exuding pus and red and angry in appearance, tartar deposited in greater or less abundance, eating away the support of the teeth, denuding them of gum and alveolus and playing such havoc that decay is a blessing in comparison, and yet "it is a shame" that dentists should recommend cleanliness in preference to this.

For the sake of argument, let us admit that the tooth-brush is the cause of the wasting away of the teeth along the gum line; then I would say that it would take a much longer time to bring about an endentulous condition of the mouth than is required by the simple neglect of prophylactic treatment.

We have some diseased conditions of the mouth that we have not yet been able to master; one, pyorrhea alveolaris, the *bete noir* of the dentist, whose severity we may mitigate, but can we cure? Another, erosion, a wearing away of the tooth or teeth, attacking them on the labial and buccal surfaces, and gradually and insidiously eating away the tooth, singly, and in pairs, working its way around until all are involved. Its work is clean and symmetrical as a rule, presenting a surface as polished as ivory and as shapely as the crescent moon. This condition, I think, should not be

confounded with abrasion nor associated with atrophied conditions.

Abrasion is caused by mastication, and is more or less pronounced as the articulation permits. Atrophy is attributed to diseased conditions, or, I might say, is a reflex of diseased conditions. A tooth in an atrophied condition would appear pitted and as if it were at one time deprived of proper sustenance. The text-books say that sickness during dentition leaves its impress on the teeth in this manner; that if a child should be twice sick, with perhaps an interval of a year or two between each illness, that the teeth will show a double row of pits corresponding with the time of such illness—that is, provided the disease is of a certain kind, for, if the pitted appearance were the result of any and all diseases of childhood we would none of us be free from atrophy of the teeth.

Now then, let us again consider the question of erosion and its treatment. First, shall we prevent? If so, how? I can think of no other way then that of systemic treatment, such as antacid medicaments. If systemic treatment will prevent, it will also arrest; but the repair must be mechanical, that is, to build up the breach by filling with gold or amalgam.

Of course, when we are confronted with teeth predisposed to erosive attack we cannot recognize that fact unless one or more of them has already begun to show signs of wear; we cannot, as yet, determine it by chemical analysis; if we could, the prevention might be easier of solution. Various experiments have been made, but nothing definite or conclusive has been discovered that will give a proper clue as to the cure.

The Therapeutic Gazette For May, 1896.

"PHYSIOLOGICAL AND THERAPEUTIC INFLUENCE OF CARBOLIC ACID," trans. from *Journal des Practiciens*. Pouchet recently contributed a paper with this title, in which he showed that the physiological actions of carbolic acid can be divided into local and general effects. Locally it is an energetic caustic, in dilute solution an irritant. In concentrated form, when brought in contact with the tissues, it causes rapid disorganization of the part and the formation of a hard mass which does not disappear for some time, while if one of the extremities be immersed in a com-

paratively weak solution of the drug a contraction of the capillaries and consequent pallor of the skin results, with a certain amount of local anesthesia—a stronger solution producing some preliminary burning. Upon the mucous membrane, the author reminds us, the acid causes first a sensation of burning pain, then anesthesia, leaving a white eschar. Full doses of carbolic acid internally may produce vertigo, roaring in the ears, tingling of the fingers, flushing of the face, increased salivation, and some sweating, besides the other well known toxic effects of the drug.

In regard to its therapeutics, Pouchet tells us that carbolic acid is best administered after adding to it small quantities of alcohol or glycerin, but he also points out that the addition of alcohol markedly increases the caustic property of the acid. There can be no doubt that for application to raw surfaces in considerable quantity, the concentrated form is far less dangerous than any dilution. This point has recently been emphasized by Dr. Allis, who states that where a dilute solution is employed the albumin in the tissues is not coagulated, and therefore the absorption of the drug readily follows; whereas if the pure drug is employed, its caustic effect is so great that a protective wall is formed through which large amounts of the acid cannot be absorbed.

The Dominion Dental Journal for May, 1896.

"A NEW THERAPEUTICAL REMEDY," by S. T. Andres, L. D. S., Montreal, read at Vermont State Dental Society, March 19th. In bringing before your notice a new compound of much value, called "Pheno-banum," I do so with strong confidence in its merit from long personal experience, which is further indorsed by the testimony given on its behalf by many leading dentists and physicians who have also tried it.

Dr. Henry Ievers, of Quebec City, to whom we are indebted for the discovery of this compound, sought for some preparation capable of destroying with certainty the microbes found in the human mouth, while also absolutely safe to use at all times, and he largely attributes this success to the complete absence of any ingredient which prevents its coming into direct contact with the parts affected, which the usual remedies sometimes fail to reach. That Dr. Ievers has succeeded in his efforts seems to be the universal opinion of leading dentists and prominent physicians who

have tried it, and I can strongly assert that I know nothing that relieves pain so quickly, and also protects a tooth from decay while any of the preparation remains in the cavity, even on cotton. These properties render it a valuable agent, that we can safely prescribe to our patients for emergencies when away from a dentist, for an aching tooth, or a tooth giving signs of threatened inflammation, and for parents to use in deciduous teeth that we are anxious to save, but which may be too badly decayed to be filled in the usual manner.

I have used this compound with complete success in many cases of most violent toothache, sometimes placing it directly in contact with the exposed and highly inflamed pulps, securing relief almost instantaneously, and subsequently capping and filling these teeth (with some of the same preparation mixed with a prepared zinc oxide), to my complete satisfaction, and in cases of threatened alveolar abscess, its use has proved by far the *most reliable* means of *aborting* the trouble that we have, proving far more efficacious than iodine and aconite or the capsicum plasters we have used heretofore in these cases.

I would strongly advise to have the patient directed to place a small plaster made from this material on the *dry* gum when feeling first symptoms of tenderness in *any* tooth, after crowning operations, or a tooth with a devitalized pulp, or one tender after the long operation of filling a large cavity, and have them renew it in two or three hours, if tenderness still continues.

For sensitive dentine, in some cases where the pain proves too severe to admit of further cutting, if you apply it on absorbent cotton packed tightly into the cavity and leave for a day, or longer if necessary, you will find a wonderful difference when you renew cutting of the dentine, or if you prefer you will give great relief by drying thoroughly and placing a little in the cavity and driving it into the dentinal fibrils with the hot-air syringe, and repeating when reaching sensitive dentine.

In ulcers of the mouth, tongue or mucous membrane, if dried thoroughly and then covered with this compound, *while dry*, it adheres without any other dressing, its insolubility resisting the fluids of the mouth and ordinary attrition of the teeth for ten to twelve hours, when a second application has in many cases cured sores that had persistently resisted other treatment.

This compound, when mixed with certain proportions of prepared zinc oxide, makes a splendid root filling, being unaffected by moisture, and never softening or disintegrating like gutta-percha, and can be made to reach the apex of small tortuous canals by mixing thinner than usual, and forcing it before a pellet of cotton. In these cases its germicidal properties are especially valuable. It also stands attrition fairly well when used as a filling for deeply decayed and sensitive cavities, and it insures perfect protection to the tooth tissue while *any* remains in the cavity, giving complete protection to the pulp (even when exposed), and may tide you over some delicate cases where you deem it inadvisable to be too thorough in the removal of decay, or unwilling to insert a metal filling at a certain time, and you can feel assured the tooth will be protected from irritation and decay until necessary to replace with a more permanent filling.

Journal of British Dental Association for May, 1896.

"CORROSION OF ALUMINUM," copied from *The Optician*. In order to ascertain the effects of the weather on ordinary sheet aluminum, Professor A. Liversidge has had two shallow dishes made of one twenty-fifth inch gauge metal, of the best commercial quality, and exposed on the roof of the laboratory, University of Sydney, from November 23, 1893, to December 7, 1894, or fifty-four weeks. The metal was made into basins so as to catch rain water, and to give the salts, etc., which it might hold in solution, an opportunity to act on the metal. The metal soon lost its brilliancy and became somewhat rough and speckled, with large gray patches; it also became rough to the feel, the gray parts could be seen to distinctly project above the surface, and under the microscope they presented a blistered appearance. This incrustation is held tenaciously, and does not wash off, neither is it removed on rubbing with a cloth. The raised parts are considered due to the formation of a hydrated oxide. Contrary to expectations, the cups had not lost weight, but had even increased. One weighing 13.91 grm. had increased by 0.104 grm., and the other, weighing 13.865 grm., increased by 0.080 grm. After boiling in water for some hours, and rubbing, the first still showed an increase of 0.77 grm. and the second of 0.055 grm. To ascertain the effect of common salt, a plate of the same metal, three

by four inches, and weighing 19'829 grm., was repeatedly dipped in a solution of sodium chloride and allowed to dry for three months; this lost 0'019 grm., and after washing and rubbing dry, 0'59 grm.

One reason for making these experiments is that Mr. H. C. Russell, F. R. S., the Government astronomer, some years ago tried aluminum cups for a rain gauge, but found that they were so quickly corroded through that he had to relinquish the use of the metal (if they had been gilt they might, however, have answered well enough). It is a very common thing to see aluminum recommended on account of its lightness and its assumed permanent lustre; this assumption being due to the statements repeated from book to book, that aluminum is unaltered by exposure to the air, to the action of water, hydrogen sulphide, and only slightly by dilute acids. The absolutely pure metal may be permanent in the air, but the best aluminum ordinarily obtainable is, in this respect (in Professor Liversidge's opinion) little, if at all, superior to zinc. The commercial metal does not retain its lustre, but very rapidly acquires the appearance of old zinc. Recently it has also been found that aluminum is acted on by sea water. Hence the claim, often advanced, that aluminum is a metal resembling gold or silver in not oxidising, rests on a slender foundation.

British Journal of Dental Science for May, 1896.

"ORAL SURGERY, STOMATITIS," by Edmund W. Roughton, B. S., M. D. (Lond.), F. R. C. S. Eng. Stomatitis signifies inflammation of the mucous membrane lining the cavity of the mouth. In some cases the submucous tissue is also affected. The inflammation may be more or less limited to the gums (*gingivitis*), or to the tongue (*glossitis*), or may be distributed over more or less of the entire membrane. Stomatitis may be due to many different causes, some local, others general or constitutional.

The inflammatory process may present different features in different cases. It may be catarrhal, phlegmonous, exudative, ulcerative or gangrenous. Very often two or more of these processes occur either simultaneously or consecutively in the same patient, but usually one of them preponderates above the rest. It is best to classify cases of stomatitis according to the nature of the inflammatory process.

Catarrhal Stomatitis. In this condition the mucous membrane becomes congested and serum exudes into the sub-epithelial connective tissue, filters between the epithelial cells and oozes upon the surface. The epithelial cells multiply with abnormal rapidity and secrete an abundance of mucus, which mingles with the serum exuded from the deeper parts to form the characteristic watery and sticky discharge of mucous catarrh.

Catarrhal stomatitis may be secondary to any of the specific fevers, such as scarlatina, measles and small-pox, or to any inflammatory affection of the stomach or intestines. It may be the direct result of any form of irritation, such as that produced by rough or carious teeth, food which is too hot, too cold or too highly seasoned, excessive use of alcohol or tobacco, and in children the process of teething, etc. It may also be due to the internal administration of mercury or iodine.

The mouth is usually painful, especially when food is taken. At first it is dry and hot, but afterwards there is an excessive secretion of viscid mucus. Taste is perverted, impaired, or lost. The mucous membrane is red and swollen; the tongue is indented by the teeth and covered with a thick coating of fur, and its papillæ are red and swollen; the gums are swollen and of a deep bluish-red tint, and covered with a greasy secretion; the ridges behind the upper incisor teeth are swollen, reddened and tender. The disease usually runs its course in a few days, but may be more protracted if the exciting cause is allowed to remain.

Treatment. The cause must be discovered and removed. The diet must be limited to fluid or soft solid substances such as milk, soup, eggs, etc., and should be cold or luke-warm. An aperient is usually required.

The mouth should be frequently rinsed with a one or two per cent. solution of Chlorate of Potassium. Children who are too young to rinse the mouth should have it cleansed with cold water after each meal, and then painted over with a solution of borax (grs. 50 ad one ounce) or boracic acid (gr. x ad one ounce).

Phlegmonous Stomatitis. In this condition there is diffuse inflammation of the submucous connective tissue of the mouth. Exudation of serum and lymph takes place into the meshes of the connective tissue, leading to considerable swelling. The in-

flammation may undergo resolution, or may proceed to suppuration, resulting either in the formation of localized abscesses or a diffuse purulent infiltration. Septicæmia or pyæmia may ensue.

The most frequent cause is injury, such as that caused by foreign bodies, or by blows forcing the cheek against the teeth; in such cases the wound becomes infected by some of the mouth bacteria. It may also result from extension of erysipelas of the face to the buccal cavity, or it may be secondary to typhoid or scarlet fever.

The disease is attended by considerable febrile disturbance and interference with the functions of the stomach and intestines. Speech and mastication are difficult and painful, and there is an excessive flow of saliva. The affected part is greatly swollen and tender to the touch; at first it feels hard, but subsequently becomes soft and can be indented by the finger. If the mouth can be opened sufficiently, the mucous membrane is seen to be red and swollen, and if there is a wound upon its surface it will look sloughy and unhealthy. Localized softening may indicate the formation of pus which sooner or later becomes discharged into the mouth.

When the tongue is the part affected it swells rapidly, becoming too large for the mouth, and protrudes between the teeth, or presses against the back of the throat, causing great dyspnoea; sometimes the swelling is limited to one half of the tongue.

Treatment. The swollen parts must be deeply scarified. When the tongue is affected great relief is afforded by making a longitudinal incision on each side of the dorsum. In other respects the treatment resembles that of catarrhal stomatitis.

Exudative Stomatitis. The characteristic feature of this kind of stomatitis is the presence of exudation (usually in the form of vesicles or pustules) upon the surface of the mucous membrane. Such vesicles and pustules may occur in the course of some of the specific fevers, such as small-pox. In diphtheria a croupous exudation may form on the buccal mucous membrane, similar to that found on the pharynx. For an account of these conditions a work on medicine should be consulted.

There are two varieties of exudative stomatitis which require description here, viz., *herpetic* and *aphthous*.

Herpetic vesicles may form on the palate, cheek or tongue, but are commonest on the lips, at the junction of skin and mucous membrane. Herpes labialis often occurs in association with pneumonia, rheumatic fever, influenza, acute nasal catarrh, and other febrile conditions. It may also be caused by local irritation, such as that produced by highly seasoned food, strong tobacco, etc.

The disease may affect either the upper or the lower lip, sometimes both. It begins as a crop of blisters varying in size from a pin's head to a pea; they develop very rapidly, and are at first clear and transparent, but after a few days become dim, assuming a greyish-white or greyish-blue color; their contents may become purulent. They are usually surrounded by a slight halo of redness. After a few days they shrivel up and form scabs. When the disease affects the mucous membrane the characteristic vesicles are not often seen because the elevated epithelial covering is macerated and shed in a short time, giving rise to superficial excoriations having a yellowish base and red swollen edges.

The treatment consists in administering a mild aperient; when the vesicles are situated on the skin they may well be left alone, but when on the mucous membrane they should be cleansed with a solution of borax or boracic acid.

Aphthous stomatitis is characterised by the occurrence of small, flat, whitish or cream coloured spots or erosions. They may result from the bursting of vesicles, suppuration of mucous follicles, or from small hæmorrhages in the mucous membrane. These spots may occur on any part of the buccal mucous membrane. They cause considerable pain and great sensitiveness of the mouth in eating, speaking, or smoking. Young children refuse their food and become poorly nourished. The treatment is similar to that of herpetic stomatitis.

Ulcerative Stomatitis.—Ulceration of the mucous membrane of the mouth may occur to a slight extent in the varieties of stomatitis already described. It may also occur in syphilitic and tubercular affections of the mouth; these will be considered separately. In this section three varieties of ulcerative stomatitis will be dealt with, viz., *mercurial*, *scorbutic* and *ideopathic*.

Mercurial Stomatitis results from the absorption of an excessive amount of mercury into the system (see mercurial necrosis). The mucous membrane becomes reddened and inflamed, especi-

ally the gum in the region of the lower incisors. The teeth appear lengthened and mastication is painful. The secretion of saliva is greatly increased and the tongue swells so that it may protrude from the mouth. The gums become swollen and spongy and retreat from the necks of the teeth; they bleed readily. The mucous membrane of the cheeks and gum becomes coated with a whitish grey membrane, on removing which deep irregular ulcers are exposed. If the disease persists the ulceration penetrates deeper and deeper until it involves the jaw, producing periostitis and necrosis.

The *treatment* consists in removing the source from which the system has become impregnated with mercury. The mouth must be cleansed by washes containing chlorate of potassium or boric acid. After the acute symptoms have subsided, the ulcers may be painted with tannic acid (grs. 50 ad one ounce), or with a solution of carbolic acid in tincture of rhatany (grs. 5 ad one ounce). The elimination of mercury from the system may be hastened by administering small repeated doses of iodide of potassium.

Scorbutic Stomatitis is one of the local manifestations of scurvy. It begins with pain, especially on mastication, and salivation. The gums become swollen and bluish-red, and project over and between the teeth; they are usually more or less ecchymosed, and sooner or later become ulcerated. The ulcers are irregular and covered by a dirty brown exudation; they bleed readily and copiously and emit a fœtid odor. Similar ulcers may form on the cheeks, tongue and lips. The teeth may become loose and fall out.

The *treatment* consists in alleviating the disease by providing suitable food, especially fresh fruit and vegetables. The local treatment is the same as that of mercurial stomatitis.

Ideopathic Stomatitis occurs chiefly in children, especially those who are ill-fed, strumous or rickety, or those who live under unhealthy conditions. It is supposed by some to be contagious. It usually begins acutely by swelling and softening of the gum, which becomes covered by a yellowish, greasy, putrid mass. When this mass is separated an ulcer is exposed, spreading along the edge of the gum and bleeding readily. The cheek opposite the interval between the teeth is often affected in the same way. There is always profuse salivation, and the breath is very offen-

sive. Pain may be severe or quite absent. The general health is as a rule not much affected, and fever is slight or absent.

The *treatment* resembles that of the other varieties of stomatitis. Chlorate of Potassium is particularly useful. It should be given in full doses, a child of four years taking 30 grains a day.

Gangrenous Stomatitis.—Gangrenous Stomatitis (noma) occurs in sickly children living amongst unhealthy surroundings, and more especially during convalescence from the specific fevers, such as measles and scarlet fever.

It usually begins as an ulcer on the inner aspect of the cheek near the angle of the mouth. The cheek becomes swollen, brawny, red and shining. In the middle of the inflamed area there is a livid spot; this soon turns into a black slough, and is surrounded by a purplish mottling; it spreads with great rapidity and often involves the whole side of the face. The inside of the cheek is lined with tough adherent greyish-yellow or soft purplish slough. When the disease starts upon or involves the gums, the latter become red, spongy and ulcerated; the ulceration extends rapidly and is accompanied by the formation of dirty looking sloughs; the teeth become loosened and fall out, and the jaw is laid bare. The saliva is much increased in quantity and is mingled with blood and pus; the breath is most offensive. There is, as a rule, very little pain and but slight fever; there is marked apathy, and the vital functions are greatly depressed. The disease nearly always leads to a fatal termination, death being due to some form of septic poisoning such as broncho-pneumonia.

The *treatment* must be prompt and energetic. All the affected tissue must be carefully dried and then thoroughly swabbed with fuming nitric acid. The patient's strength must be supported with fluid nourishment, tonics and stimulants.

"BUCCAL SYPHILIS," by R. B. Wild, M. D., M. Sc., read at the Manchester Odontological Society. Every dentist should be able to recognize a syphilitic patient; first of all for his own welfare, because syphilis is not unfrequently contracted by the secretions of a syphilitic patient getting into a little scratch or abrasion on the hand or fingers of an operator; secondly, for the welfare of his patients, since syphilis has been transferred from patient to patient by means of instruments used inside the mouth.

For example, syphilis has been conveyed from one patient to another by means of a stick of caustic; a Eustachian Catheter some years ago was shown to be the cause of thirteen cases of syphilis in the practice of a Parisian throat specialist; there are also, I believe, several cases in which dental instruments have been the source of infection. I believe, therefore, that it will be of interest to you to briefly review those appearances in the mouth which should, when recognized, make you particularly careful to thoroughly disinfect all instruments used in that case before using them on another patient, and also to take precautions to ensure your own safety.

With regard to the disease itself, we are all inclined to regard syphilis too exclusively as a venereal disease. In the majority of cases it undoubtedly is so, but about ten per cent. of all cases are contracted in a non-venereal manner. The primary lesion in these cases may occur on any part of the body, the important fact for our purpose tonight is that one-half of them (*i. e.* about 5 per cent. of all cases) occur in the mouth.

The parts of the mouth affected are the lips, tongue, tonsils, and soft palate, the two former more frequently than the latter.

Syphilis in the mouth takes on all the three forms which it presents on other parts of the body, viz., the so-called "primary," "secondary," and "tertiary" lesions. The primary form is the rarest, and the secondary the commonest. It is very rare indeed for any syphilitic patient not to present at some period of his disease secondary lesions in the mouth, no matter what part of the body was the seat of the primary infection. The tertiary lesions are intermediate in frequency.

Most of you know that syphilis is a disease which runs a very definite course; in the first period, or period of the primary sore, syphilis is a disease such as a carbuncle or any other disease of the skin or mucous membrane in which local infection has caused symptoms of local reaction on the part of the tissues. Sooner or later the local infective agent increases and multiplies, and passes into the blood, so that in this, the secondary stage, the disease is a constitutional one, similar to small pox or scarlet fever, and during this stage the blood and tissues of the patient are contagious, and capable of conveying the disease; the secretions of the patient are also infectious, especially the saliva, but it is un-

certain whether this is due to the saliva *per se*, or to the fact that it is ordinarily mixed with the discharge from the syphilitic lesions within the mouth.

The third period is one in which the patient has recovered from the constitutional disease, but the infective agent, whether it be a micro-organism or not, remains behind in certain tissues as an actual or potential cause of disease affecting that particular tissue; this tertiary period differs much in appearance and characteristics from the two preceding stages, but no hard and fast line can be drawn between them; one point, however, is important, viz., that it is either non-infectious, or at any rate much less infectious than the other two.

The primary sore or "chancre," is the first to consider, it occurs always as the direct result of local inoculation from another case. Infection occurs through kissing; the use of drinking vessels, spoons, pipes, etc., in common; and certain instruments used within the mouth. The first appearance, three to six weeks after inoculation, consists of a small, red, raised papule at the infected spot, there is not as a rule much pain, the papule extends and becomes intensely hard at its base and is then known as a "hard" or "Hunterian chancre," later on ulceration occurs at the surface and the neighbouring lymphatic glands become enlarged and hard. After some five or six weeks the chancre commences to heal, and apparently becomes quite well with the exception of some hardness remaining behind. From six to twelve weeks after inoculation or even later, the secondary symptoms appear; in the mouth slight sore throat, with a general congestion of the fauces and palate is often the first of these. The next stage is characterized by the appearance of "mucous plaques" or "condylomata," these are little raised patches on the mucous membrane, of irregular shape, not above 1-16 of an inch in height and well defined at their edges, they are white in colour owing to the thickened epithelium on the surface, the red colour of the mucous membrane being seen as it were, through a layer of opaque or ground glass; in many cases they closely resemble a patch of mucous membrane to which a stick of nitrate of silver has been applied.

These patches are especially common on the inner surface of the lips, especially about the corners of the mouth, on the inner surface of the cheeks, especially along the line opposite the sep-

aration of the upper and lower teeth; they also occur on the pillars of the fauces, the hard and soft plate, the uvula, and tongue. Sometimes the tongue shows, instead of a raised patch, a depressed, smooth, irregular area sensitive to the touch, in which the papillæ are smoothed down below the level of the surrounding healthy tissues. The next stage of secondary symptoms in the mouth is that of syphilitic ulceration. This often affects the same parts as are affected by the mucous plaques, the ulcerations are characteristic and generally of irregular shape, crescentic, "horse-shoe" shaped, or at any rate, bounded by curved lines; some of them are elongated curves which have been described as resembling "snail tracks." All the ulcerations in this stage are superficial, they extend in a serpiginous manner, there is not much discharge, and the base of the ulcer is often greyish in color. No part of the mouth is really free from them; but the pharynx, tonsils, palate, and sides and tip of the tongue are very common situations; they are often more or less symmetrical.

To sum up the chief lesions of buccal syphilis in the secondary stage, we have firstly the superficial congestion, secondly the raising up of the mucous membrane into mucous plaques, thirdly the breaking down of the diseased tissue so as to form ulcerations, and fourthly the presence of scars telling a history of past lesions.

One important point to be noted in all these forms of buccal syphilis, is the disparity between the extent of the local disease and the subjective symptoms of pain and dysphagia from which the patient suffers. It is not uncommon to hear a patient complain that he has a slight sore throat, but that it does not trouble him much, and to find on examination extensive ulcerations and other lesions, which, had they been due to any other form of disease, would have entailed great suffering.

The final stage of syphilitic mouth lesions is seen in the scars which not infrequently remain after the local ulcerations have healed; these are important as indications of past disease, they are often found near the angles of the mouth, and on the soft palate or fauces, where contraction of the scar tissue may produce deformity of the parts, such as dragging the uvula to one side, or even fixing the tip to the adjoining tissues.

The tertiary lesions of syphilis, on account of their much less infective character, are less important to the dentist than the primary and secondary. They consist chiefly in what are called "gummata," a very low type of inflammatory disease in which a large number of cells are produced at one point of the affected tissue; these accumulate and form a distinct tumour, the blood supply of the new-formed cells is cut off, partially by the pressure of the cells themselves, but also by co-existent disease of the blood vessels; as a consequence the cells die, undergo degeneration, and the gumma becomes soft, ulceration of the surface occurs, and the contents are discharged, leaving a deep ulcer which heals up by a considerable and permanent scar. Sometimes gummata penetrate deeply, erode the bones and cause perforation of the palate, or great deformity in the nose or other parts. The tongue is also affected and the gumma may be mistaken for cancer.

The Medical Record for May 30, 1896.

"THE VALUE OF FORCED ARTIFICIAL RESPIRATION (FELL METHOD) IN SAVING HUMAN LIFE IN CHLOROFORM, ETHER, AND NITROUS-OXIDE NARCOSIS, ETC.," by G. E. Fell, M. D., F. R. M. S., read before the Buffalo Academy of Medicine, Buffalo, N. Y., March 10, 1896. *First Cases.*—The first attempt I made to save life by forced artificial respiration was July 23, 1887, the subject a human being, and the operation resulted successfully. The laboratory apparatus used at that time merely demonstrated the value and safety of the principle which, previous to this and my following cases, had been universally condemned as not only unreliable but dangerous to use. The prevailing opinion at that time was that the air vesicles of the lungs would not resist forcible mechanical measures in artificial respiration. The medical world had accepted the views of the celebrated English physician, Marshall Hall, to "avoid the use of bellows or any forcing instrument" in his ready method in asphyxia. In this first case it was found that no lesion or interference with the pulmonary tissue had been produced, although the case came near being a failure through the laboratory apparatus used being unsuitable in its application to man. In my second case, a much more difficult one, I succeeded in saving my patient after breathing for him fourteen and

one-half hours, which I could have accomplished only through the new apparatus which I had specially devised for use upon human beings. Since then, December 10, 1887, some one hundred human lives, which would certainly have been sacrificed by the methods at the command of the profession at that time, have been saved through forced respiration. Most of these cases have been saved at my hands with few exceptions in the city of Buffalo, where I reside. It may be truthfully asserted that the manner in which I have utilized forced respiration is the only one in which it has been systematically demonstrated to be of value in saving human life.

Author's Method with Face Mask.—The introduction of the use of the face cup or mask has also overcome the prevalent idea that the epiglottis would fall and close the glottis in forced respiration. Many lives have been saved by it without necessitating the operation of tracheotomy, and its use has demonstrated that intubation is seldom needed, although its value must not be lost sight of in forced inspiration, as I intimated in my first writings upon the subject. My work has also demonstrated the uselessness of double-bellows and double-cylinder schemes, which had long been advanced and had failed as measures for artificial respiration. They will never be utilized in forced respiration when the same work can be more thoroughly and more easily applied and at less expense by the measures I have utilized.

Many believe forced respiration to be of value only in cases of opium narcosis, the field in which I first systematically utilized it.

This is far from the truth, as many cases have demonstrated, so that the broad assertion may be made without fear of contradiction that it will keep up the respiratory action in man better than any other method of artificial respiration now known.

Cases of Chloroform and Ether Narcosis in which the Patients were Saved.—We will first look into a few cases, heretofore unreported to a medical body, which affect the everyday experience of the medical and dental practitioner. Within some months I was called in council to attempt the reduction of a strangulated hernia. The anæsthetic was chloroform. Thorough anæsthesia was produced slowly and carefully, but the method by taxis failed to reduce the hernia. Deeper narcosis was produced and the pa-

tient stopped breathing. I applied forced respiration by the face mask for five minutes and auto-respiration ensued.

The anæsthetic was used again, the respiration ceased the second time, and again the apparatus was used with similar results. Operation revealed an omental hernia which could not have been reduced by taxis. However, under the chloroform, what a weight of anxiety was lifted from our minds by the satisfactory working of the forced respiratory apparatus! I did not use the Sylvester method, because I had no faith in it as compared with my own method and wanted to take no chances, the method of forced respiration being much easier in application and more effective.

Another everyday case occurred in this city, in which ether was used as the anæsthetic—a case of a young lady being prepared for a surgical operation. The respiration ceased, the Sylvester method failed to establish auto-respiration, the patient was taken to the Fitch Accident Hospital, where the apparatus was used for about half an hour, and the patient's life was saved. Thus, in cases of chloroform and ether narcosis we do not require to merely present an opinion upon the efficacy of this method of artificial respiration over all others, but give you facts which, connected with the results of this work in the past, are worth a multitude of dissertations founded, as generally is the case, upon experimentation on animals. Right here I might say that I have not made progress by such methods, and it is an interesting fact, which a remarkable array of circumstances has brought about, that all of my experimentation in the saving of human life by forced respiration has been made upon living human beings. My first attempt to save life by this means, as stated, and in which I succeeded, was made upon a human being.

Value in Nitrous-Oxide Narcosis.—But let us relate the value of the method with that other most frequently resorted to anæsthetic used in dental operations, nitrous oxide, and note the results. Here in this city of Buffalo we can present contrast cases of a most interesting nature, through which the value of forced respiration is made to stand out with great clearness. There is no subterfuge under which you can dim its value. To it alone must be given full credit for the saving of these human lives, and these cases cannot be obscured by the petty jealousies of professional life. The results of my labor in this line may be dimmed tem-

porarily, but will eventually shine all the brighter when its true magnitude comes clearly to the light of the fullest investigation.

Dr. Longnecker, of this city, a dental practitioner, had administered nitrous oxide thousands of times. About one year ago a young married lady was taking this anæsthetic at his hands in the presence of her husband. She ceased breathing. Sylvester's method of artificial respiration was resorted to, and a skilled surgeon, Dr. M. Hartwig, and his assistants worked faithfully to save the patient's life. Her heart kept on beating for fifty-five minutes, and yet death stepped in, when, as we will show, her life might have been saved had proper appliances been at hand. I am indebted to Dr. F. W. Low, of this city, for the facts here stated:

"Patient, Mrs. G—; nationality, Irish; age, twenty-six; occupation, trained nurse. Anæsthetized for extraction of right inferior *dens sapientiae*. The gas was exhibited to the amount of six or seven gallons. No unusual pallor was noticed during inhalation. When the pupillary reflexes denoted complete anæsthesia, the tooth was extracted. The patient sat quietly in the operating chair, apparently able to recommence respiration, and inasmuch as it is my habit to allow a moment to intervene after extraction before attempting to arouse one to consciousness, no alarm was felt at first. When I attempted to rouse her, however, it was found to be impossible. I then unhooked her corsets and cut all waistbands, and attempted to induce respiration by telescoping the short ribs and then suddenly letting go. Previously, during eighteen years' experience with nitrous oxide, this method had always resulted in the re-establishment of normal respiration. After several attempts of this character had proved unavailing, I sent for Dr. Chas. S. Butler, who practiced dentistry in the same building, and also sent for the Fitch ambulance, with the request that the hospital surgeon should bring with him 'the Fell forced-artificial-respiration apparatus.'

"Dr. Butler came immediately to my assistance, but before he arrived I had opened the mouth and drawn the tongue well forward to open the air passages, and had again attempted several times to start respiration by telescoping the short ribs. Upon his arrival the patient was placed on her back on the floor, a pillow first being placed under her shoulders, and artificial respiration

was attempted by the Sylvester method. Some slight amount of air must have been forced into the air passages, inasmuch as the patient did not become badly cyanosed, but still no voluntary respiratory effort could be induced, and Dr. Butler discovered that the radial pulse had become very indistinct. Applying his ear to the region of the heart, he reported its action as being both very feeble and irregular. I resorted immediately to a hypodermic injection of from fifteen to twenty minims of brandy in the arm. The heart's action was observed to be somewhat improved, but the patient appeared to become if anything more cyanosed, in spite of our efforts at artificial respiration.

"Upon arrival of the ambulance surgeon, probably fifteen or twenty minutes had elapsed since the case had become alarming. The Fell apparatus was immediately brought into use, and hypodermic injections of fifteen minims of digitalis and one-thirtieth grain of strychnine were administered.

"I was not present when it was finally discovered that the patient could breathe for herself, but I judge that it must have been nearly or quite thirty minutes after the arrival of the ambulance surgeon.

"The patient was now removed to the hospital, where I visited her an hour later and found her convalescent. She was able to be about her duties in the afternoon of the same day, though feeling very much 'out of joint,' as she afterward told me, probably the result of my heroic effort before the arrival of the ambulance surgeon.

"I have recently learned that the patient reported in the above case had, during the early morning hours of the day of operation, resorted to hypodermic injections of morphine at different times, in all amounting to three-fourths of a grain. This was for the purpose of allaying the intense pain which she was suffering, not only in the offending tooth, but still more so in the regions of that side of her head."

"F. W. Low."

Will anyone, I ask, question whether Dr. Longnecker's patient could have been saved in the face of Dr. Low's recital of his most important and interesting case? In the latter the previous administering of the morphine added difficulty to the work of the apparatus, but renders the result more important. Have we not now the right to ask who will be the next to let their patients die

when they may be kept alive by the exercise of a little right-minded forethought? Thousands of physicians and dentists are, as placed to-day, ignorantly ready to take their chances in dealing with the lives of patients entrusted to them. It would seem from these cases and others similar in nature which might be reported, that forced respiration might prove almost a specific in such cases.

The Case of Dr. Henry J. Williams.—The patient in this case had been a student in the medical department of Niagara University, Buffalo, N. Y. He had passed the general examination of the faculty of the school and taken the regent's examination to enable him to practice medicine in the State. During the entire course of his studies he had been employed as night out-door collector in the work of the Buffalo Postoffice Department. He was overtaxing his mind and body to a marked degree. During the last few months of his medical course he had resorted to tincture of nux vomica, twenty minims, three times daily. Owing to the inconvenience of carrying the liquid, he had resorted to strychnine, one-fortieth grain, three times daily per stomach. On the night of July 2, 1894, he had been without sleep and needed rest for five days and nights; in fact, he was a thoroughly exhausted man.

About 1:30 A. M., July 3, 1894, under these conditions, he administered to himself hypodermically two one-fortieth-grain tablets of strychnine. He did not obtain the bracing-up effect desired so soon as he expected and in a short time repeated the dose. He then took another one-fortieth, when the drug manifested its toxic effects in twitching of the muscles and tendency to opisthotonos. At this he became frightened and gave himself a hypodermic injection of one-fourth grain tablet of morphine and atropine as an antidote, and repeated the dose twice at short intervals, as the convulsions had continued to increase. He stated that he did not believe his life to be in danger at any time—did not think it necessary to call a physician. The truth is that he was dazed and stupid, and was fast losing control of his faculties. He subsequently stated that he had the dreamy recollection of repeatedly administering the morphine hypodermically until he became unconscious. There is thus no certain evidence of the amount of morphine and atropine administered. It was about 2

A. M. when the last drug was administered, and about 7 o'clock next morning when his father discovered him on the floor of the bathroom, unconscious and cyanosed.

Dr. Archie Drake near by was summoned. He was followed by Drs. Wesley C. Earl and Thomas Bagley. The latter on consultation administered hypodermically a dose of strychnine. Dr. Sydney A. Dunham next came upon the scene. He wisely proceeded to perform Sylvester's method of artificial respiration, which was beneficial in a degree, as it held the life of the patient until my arrival at 8:30 A. M.

First day, Tuesday, July, 3, 1894. Condition of patient on my arrival: Unconscious, reflexes absent, cyanotic, pulse at wrist weak, with difficulty to be detected. An occasional gasping respiratory effort was made. With a hasty glance at these different features, I immediately applied forced respiration with the face mask. Whether it did any good or not, I felt that the case was so desperate as to warrant the operation of tracheotomy, which was immediately done. Hemorrhage persisted, so that it was 9 A. M. before the forced respiration was systematically under way. In a short time the pulse improved at the wrist, but the cyanosis passed slowly away. At 11 A. M., after two hours of forced respiration, the patient opened his eyes and in a startled manner asked, "What is the matter?" and immediately relapsed into unconsciousness. The desperate condition of the case being evidenced by the unusually slow response to the efforts being made, it was thought best to administer oxygen gas with the forced respiration. A supply was obtained and connected with the oxygen tube of the apparatus. It was used throughout the case, but it was found that the oxygen alone was not sufficient to retain the life of the patient.

During the whole of Tuesday afternoon and night, July 3, 1894, the first day and night, the apparatus was in continual operation.

Second day, Wednesday, July 4th, Independence day. I had arranged to visit my family and take part in the festivities away from the city, and at 11 A. M., with this object in view, I removed the tracheotomy tube from the neck, expecting that the auto-respirations would ensue and that with the aid of the oxygen gas continuously administered the patient would be enabled to exist

without the aid of the respiration apparatus. Then, again, Dr. Williams had now been kept alive by these special artificial means for a longer period of time than had ever occurred previously in the history of forced respiration. We had been continuously at work with him for twenty-six hours. I left the patient in the hands of Dr. Earl Lothrop and Dr. R. R. Taylor, and nurse Mrs. Edmunds, and left for my office to take the boat for Crystal Beach. On arrival at my office I was summoned back with the unpleasant news that the oxygen supply had given out. I gave instructions to have the supply renewed, and hurried back to the patient. He was breathing with considerable exertion, but was somewhat relieved by the renewal of the oxygen supply, so that I made another attempt to get away. I had not reached my city office and residence before a telephone message was sent again, urging my immediate recall, with the admonition that the patient was breathing with great difficulty and had become cyanotic. On again reaching the patient I found that in addition he had relapsed considerably. I then gave up all hopes of having a vacation, and replaced the tracheotomy tube in the neck.

2 P. M., July 4th. I again renewed the forced respiration with varying proportions of oxygen gas, and kept it under way continuously till 9 A. M., July 5th, or the second long-continued period of forced respiration, viz., twenty-one hours.

Interesting Influence of Forced Respiration in Reducing Temperature. At the beginning of this second long-continued respiratory effort the temperature in the mouth registered 104.5° F. At the close it was 101° F., or a reduction of three and one-half degrees. Nothing in the line of antipyretic medication had been utilized, and the decrease in temperature had not taken place under the administration of the oxygen gas. Or, in other words, all agents utilized were of no avail without the mechanical respiration; it alone was the necessary factor in the life of the patient; and, owing to the perfectness of the method and its similarity in influence to physiological respiration, its tendency was toward the toning up of the system and the overcoming of the abnormal condition existing. This speaks volumes for the perfect working of the simple apparatus and for the complete and instantaneous control the physician has over the character of the inspiration, he having it in his power to shorten or lengthen an inspiration or

expiration, to change instantly from one to another, and thus to aid the autorespiratory effort when attempted on the part of the patient. This is effected by the arrangement of the air-control valve, which is simple and yet does its work entirely at the option of the manipulator. Other methods recommended will not accomplish this so readily.

Third day. On the third day of the case, Thursday, July 5th, the question as to the probability of the patient ever being able to breathe for himself was becoming, indeed, a serious matter. It was with a view of giving him an opportunity to do so that the interval between 9 A. M. Thursday and 7:30 P. M. was devoted to auto-respiration. As the afternoon wore away, it became evident that a serious mistake had been made in not early renewing the forced respiration or in discontinuing it at all. The patient relapsed into unconsciousness where before a semi-conscious condition prevailed; the respiration became shallow, cyanosis set in, and the case appeared more hopeless than at any time previously, so that many of the doctors present ridiculed the idea of saving the patient. The pulse became weak, thread-like, and frequent, so that continued hypodermic treatment with brandy and caffeine and rectal alimentation became necessary to sustain the fagged-out system.

7:30 P. M., Thursday, July 5th. Forced respiration was again resorted to, as it had been conclusively proven in this, as in many other cases, to be the only agent which could with certainty be regarded as a life sustainer. I made up my mind to keep it under way until the end came, "be it what it might."

The result was marvellous, although improvement came slowly. The temperature, without other treatment than the forced respiration and oxygen with sustaining measurers, came down from 104.25° to 100.8° F., the cyanosis passed away, and the pulse improved in force and lessened in rapidity just so long as we kept our breathing-apparatus under way.

Fourth day. Toward the middle of the afternoon of Friday, the fourth day and third night since my method was used, we again gave the patient an opportunity to attempt his own breathing. The apparatus was used for five minutes and then the patient was allowed two or three minutes at auto-respiration. This was kept up for a short period, as it was evident even at this late time

that the respiratory centres were not in sufficiently vigorous condition to control and keep up auto-respiration. It was very fatiguing for the patient to make these efforts, and he would hail with satisfaction the relief afforded by the forced respiration; being perfectly conscious he could not with all his energy keep up auto-respirations.

After a time the working of the apparatus became unpleasant to the patient; the rushing of the air into the trachea appeared to bother him. The fact, however, began to dawn upon us that he was getting into condition to breathe for himself, and at ten o'clock on the evening of Friday, July 6th, we gladly relinquished to Dr. Williams his undoubted right to do his own respiratory work.

The third and last continued period of forced respiration in this case began Thursday at 7:30 P. M. and terminated finally at 10 P. M. Friday, or twenty-six and one-half hours. The total time during which the apparatus was in constant use was nearly eighty hours.

The tracheotomy tube was removed from the neck, the wound closed antiseptically, and the patient made as comfortable as possible. For some time during the use of the apparatus nutrient enemata were used, the urine was drawn by catheterization, and food and medicine were administered by the mouth.

The longest time during which the method was used prior to this case was at the Continental Hotel, Buffalo, in my practice. The respirations were kept up continuously twenty-one and one-half hours and in all twenty-four, before the patient could breathe for himself. He is now living in Pittsburg, Pa. Numerous cases have taken place in which the respirations have been under way for from eight to fourteen hours with favorable results, and in which the face mask was used instead of tracheotomy. Nothing like Dr. Williams' case had ever been reasonably contemplated as a possibility. That a human being, by the administering of poison accidentally or with a mistaken knowledge of its effects, could place himself in such condition that the respiratory centres could be inhibited for days in the performance of their functions, and that it might be possible to respire by mechanical methods in such a condition for days at a time, would appear preposterous.

All this has been accomplished in the case I have presented, and it may be cited as one in which verily "fact is stranger than fiction."

Further Application of the Method.—The inhibition of the respiratory centres in the case of Dr. Low's patient, in which it was of a comparatively temporary nature, and in that of Dr. Williams, in which for days their function was paralyzed, make the remarks of Dr. Horsley, of England, reported in the *Quarterly Medical Journal*, of special interest in connection with forced respiration. He calls attention to the fact that in cases of cerebral compression, such as arise, for instance, from cerebral hemorrhage, tumor, or depressed fracture, as well as from sudden and violent concussion, especially when applied to the region, death is due to failure of respiration.

From experiments on animals he determined that a use of pressure in the skull always causes slowing and diminution of the respiratory movement, and later arrest of the same; and, furthermore, after release and re-establishment of the pressure has been carried out once or twice, the respiration becomes periodic, exhibiting the characteristics of Cheyne-Stokes breathing, or simply becomes irregular in force or in rhythm. Both these effects may be due to direct pressure and secondary anæmia caused thereby.

The practical application is that under such conditions in many instances it is as important to perform forced respiration as if the case were that of a drowning man. Horsley sums up his communication with the statements that the respiratory centre is more sensitive to mechanical pressure and shocks than any of the lower vital nerve centres; that where death threatens from intracranial pressure artificial respiration should be performed and the skull opened freely; and that in cases of sudden shock artificial respiration should be instituted immediately and heat applied to the head frequently by migration. In fact, I believe that in many cases of brain surgery altogether too little attention is given to support by artificial respiration, and now that forced respiration can be carried out in these cases another important field in which to use it is opened up, in addition to many reported in my former papers. Had I the hospital service presenting the opportunities, I should long ago have demonstrated the practicability of these opinions.

The Ohio Dental Journal for May, 1896.

"A METHOD OF STRENGTHENING PARTIAL LOWER PLATES," by W. H. Brown, Nashville, Tenn. We all know what a difficult matter it is to make a strong partial lower plate in certain cases where it extends around in front. I have for three or four years been using a small platinum wire, or, if the price we sometimes get is not sufficient to justify, a German silver wire will do, as it is covered with rubber.

Prepare the plate as follows: Wax up and invest in the usual way, remove the wax, then before packing take a wire sufficiently strong to suit the case, being governed by length of space, bend with a pair of round nose pliers to fit close up to the model all the way around, letting each end extend about a half inch past the first tooth to be inserted. After you have fitted the wire accurately warm your flask and proceed to clip your rubber into small pieces, pour a little chloroform into any small vessel, place the wire in position and proceed to pack the plate in the usual way, using the chloroform to dampen the rubber so as to make it stick to the model and in that way there is no danger in dislodging the wire. If care is taken in fitting the wire it will not show through when the plate is finished and you will have a strong light plate.

"A REPORT OF TWO CASES OF NEURALGIA OF THE SECOND BRANCH OF THE FIFTH NERVE; EXCISION; RELIEF," by W. H. Hamilton, M. D., Columbus, O., read at Ohio State Dental Society, Dec., 1895. Tic doloreaux is a very painful affection. It most frequently involves the second branch of the trifacial. As the disease may affect all the branches, and especially the two lower, it is a condition the discussion of which may be pertinent to dentists.

The etiology and pathology are vague. There is no doubt as to the severity of the sufferings which it may entail. The fact that it is frequently found in subjects whose constitutional condition is very low is suggestive. May it not in a proportion of cases be a species of neuritis in physical bankrupts; in other words a vice of impaired nutrition. If a patient should lose flesh and strength, and should become anæmic, so that there is from any cause decided impairment of the general health, that fact makes him the target of intercurrent diseases.

In perfect health the peripheral nervous system, if such it may be termed, should do its work unconsciously, so far as its possessor is concerned. In disease, perversions of sensation or actual pain may be observed along portions of this system. Affections of the brain or cord, or the meninges; distal irritants, ulcers about the the tongue or floor of the mouth, disease of the teeth, or alveoli, or gums, may give rise to pain, which, if radiated along a branch of the fifth, may cause trigeminal neuralgia. Probably profound anæmia or malarial saturation, or both conditions together, are common accompaniments of it. While, on the other hand, the tendency of the pain to wreck the patient's health is a most rational result. Suicide has in some instances been attributed to it. It is a significant fact that while many of these sufferers have had their teeth extracted before visiting the surgeon, relief is rarely thus obtained. External applications of drugs and electricity have been employed with some benefit. Morphia hypodermically has been a natural therapeutic reliance. It is in no sense curative. It aggravates the pain, for it creates the necessity for its repetition. The regular use of an opiate for a fortnight for pain will often show its grip on the patient by the apparent production of intense pain, at the time at which the drug should have been repeated, according to the interval at which it has been given. In other words, the discontinuance of an opiate may often produce pain, if the expression be allowable.

"Considerable success has recently attended the practice of injecting a one per cent. solution of osmic acid into the tissues, close to the affected nerve. The injection itself causes a good deal of local pain, puffing and swelling, and has to be repeated several times before any permanent subsidence of pain is produced. This is probably due to the fact that the osmic acid, which has a powerful affinity for certain elements of nerves, as is known by the staining which it causes, sets up degeneration of the nerve fibers with atrophy. The length of time which it takes to act in the treatment of neuralgia supports this view and shows that the cessation of pain is not a 'cure' in the true sense of the word."—*Treves*.

A small proportion of patients suffering from recurrent tic get relief from the use of gelsemium or arsenic, or a change of cli-

mate. An old man whom the writer saw in consultation some months ago with the late Dr. Flowers, of this city, had suffered much from neuralgia of the second branch. He had athermatous vessels, had become quite ex-sanguine, and was much debilitated. By liberal feeding and the use of arsenic, with change of climate, relief was obtained. No doubt too the impairment of tone of the vascular tunics may have had its influence in inviting the disease and in retarding his convalescence. Of the radical procedures that surgeons have from time to time advocated for the correction of tic, either general or affecting other branches, I shall only say that while they are very interesting, time prevents us from entering upon the discussion of them. Recurrence after the various operations is very common. The interval varies from a few weeks to three years. The most formidable thing done has been the removal of the Gasserian ganglion, which lies near the apex of the petrous portion of the temporal bone. The names of Mr. Rose, of King's College hospital, Andrews, of Chicago, Hartley, of New York, Keene, of Philadelphia, and Horsley, the brilliant surgeon, pathologist and neurologist of the University College Hospital of London, deserve conspicuous mention in connection with these radical performances. Carnochan, of New York, who devised the procedure, trephined the antrum to facilitate neurectomy, and his operation was resorted to in the cases which are herein submitted.

Case 1.—Mr. B. S., a German from Vinton City, aged 64, laborer by occupation, entered the Mt. Carmel Hospital, Oct. 1, 1893. He had had agonizing pain much of the time of late. It was paroxysmal and was not associated with convulsive movements of the facial muscles. A slight draught, the act of smiling or gentlest efforts to masticate, give rise to pain. It had increased so much during the previous few months as to impair his nutrition and strength. Furthermore, he was incapacitated from all forms of labor. The pain affected the right side of face from the upper lip to the eye, and outward to the angle of the jaw. The cheek and in fact all parts of the face supplied by the second branch were tender, and handling of the parts provoked an attack. All medication had failed to relieve him. Operation Oct. 19th, 1893. An anatomical landmark of interest to us is the fact that a straight line from the junction of the inner third with middle third of orbital edge of the

frontal bone to the interval between the two bicuspid of both jaws, will, if produced, locate the openings of exit of the three branches of the 5th; supra-orbital, infra-orbital, mental. A T-shaped incision below the orbital edge of the upper jaw was made and the nerve isolated, and a trephine was applied to the antrum. The nerve having been hooked up was followed through its canal by chiseling away portions of the bone wall. More than an inch of the nerve was excised. The wound healed in a few days. He was discharged from the hospital on Oct. 31st, 1893, eleven days later. He has had no signs of recurrence of the pain and is in excellent health.

Case 2.—The patient who is presented to you to-day is 67 years of age. For four years she had been afflicted with this disease. The usual therapeutic measures had been used and had failed to relieve her. She was anæmic and feeble. Her health had been broken. She was operated upon at the hospital last July. A small trephine was applied to the antrum as in the preceding case. The bony walls of the upper jaw were very thin and frail. The soft parts were lifted up from the floor of the orbit. By means of the chisel all the intervening bone was removed from the opening thus made through the lower rim of the orbit. This vertical extension was narrower than the trephine aperture. Following the nerve, the bone was perforated with a director throughout the course of the groove intended for the reception of that trunk. About an inch and a half of the nerve was excised. The extensive removal of bone destroyed in part the abiding place of the nerve. It offered a more radical destruction of it, in its continuity.

Comparison of the two cases has proved that the scar is less noticeable in this than in the first one. Although it is too early to demonstrate its permanent utility, it is gratifying to learn that there has been entire immunity from the former torture. She has gained twenty pounds in weight since the operation.

"PRACTICAL POINTS," By Dr. T. B. Wallace, Garner, Iowa, read at Northern Iowa Dental Society. Take the superior bicuspid tooth which is left quite badly decayed. We all know that but little dentine is left, less I think in proportion to the tooth and cavity than in any other tooth. We prepare the cavity, make

careful preparations for retention of the filling, fill it carefully; patient goes away, and in the course of time he returns with the inner wall broken off. What is the trouble? We have not done the work right; the inner cusp, which was sharp, occluded too strongly with the lower tooth; causing it to give way. The filling is loosened and comes out. The crown is in bad shape and the only recourse left is to crown or cap in order to save it. In my experience that tooth has given me more trouble than all the rest of the teeth. My treatment now is to cut down the inner cusp until it is free from occlusion or to a point of protection from force. I apply this method of treatment to others, especially to the molars. We are too afraid of cutting away too much tooth substance, but better that than to lose a filling from the wall breaking away. It is hard to tell just where to stop or what cases should be treated in said manner, as we will have to leave that point to your own judgment. Another mistake is trusting too much to pits and grooves for gold fillings. Pits and grooves alone will not hold a filling in a cavity. It must have a retentive shape in some manner. If necessary to make one, it should be made upon the strongest wall. Not only myself but some others, whose work has come under my care, have had failures by depending too much upon pits and grooves to hold the filling in place. I now use merely a pit or groove to start a filling, and rely upon the retentive shape of the cavity to hold it. Some operators are more expert than others with gold and may not require so much care in preparing cavities, but we cannot be too careful in preparing any cavities for filling. It is success and not failure we are laboring for.

Root-filling is another point. Some do not succeed very well along this line. Since I adopted the following treatment I have not had one failure so far and I have used it for a year or more. It is the use of hot air applied to the canal after a thorough treatment with peroxid of hydrogen and Black's 1, 2, 3 mixture. Then I dry canal with broaches wrapped in cotton, then force carbolic acid solution to apex of root. Taking my chip blower and lamp, I exhaust air in bulb, hold point in blaze of lamp, filling bulb with hot air, then apply to and force into canal until tooth becomes heated, then proceed to fill canal. I use chloroform with gutta-percha points. I have, I think, as perfect a disinfected condition

of tissue and canal as it is possible to get. I have tried several ways, but this manner suits me the best so far.

The Dental Cosmos for May, 1896.

"MOLECULAR ATTRACTION IN ROOT-FILLING," by H. W. Allwine, D. D. S., Omaha, Neb., read before the Omaha Odontological Society. At a former meeting of our society you requested me to present experiments and prepare a paper on the above subject. I take pleasure, therefore, in reading this paper and presenting for your examination some of the results of my work.

That I might clearly note the action, in small tubes, of various materials used in filling roots, I drew out small glass tubes, conically shaped, varying in size and form, as do root-canals. I call them tubes, but you will notice that they are cone-shaped, as are root-canals. Some are large, while others are so small that the smallest broach cannot be passed into them. In using roots of teeth for experimental work, the progress and result of the work cannot be seen. Some of the material may appear at the apex, while at the same time some of the root may remain unfilled.

Before discussing the various root-filling materials, I wish to prove to you, by ocular demonstration, that capillary attraction, a form of molecular attraction, does not come to our aid in root-filling. We find capillary attraction exists only when the tubes are open at both ends. Root-canals are practically sealed at one end. I have here a number of variously formed tubes. Some are open at both ends, while others are sealed at one end. I now place the open ends of the various tubes into this colored water. Notice how rapidly it rises through the entire length of the tubes open at both ends, while it does not enter at all the tubes sealed at the outer end. This is an important observation, because it is at variance with the teaching of some of our prominent writers. One even, in his enthusiasm for salol, goes so far as to tell us, in his journal, that he squirts it into root canals, indiscriminately, with a syringe. I am not here to state that others cannot do thus and so because I fail therein, but I do say that it is contrary to nature's laws,—science,—and I cannot do it. Large tubes, sealed at one end, into the entire length of which the needle can be passed, may be filled nicely by a syringe, with liquid, by passing the needle into the entire length of the tube, pressing on the piston, and gradually withdrawing the needle.

Before reading further, I will demonstrate these truths of science with the tubes and syringe here at hand. You will note how readily the liquid passes into the tubes open at both ends. Notice, too, how easily I fill the tube sealed at one end by passing the needle into the entire length of the tube, pressing on the piston, and gradually withdrawing the needle. Now you will observe I pass the needle part way up this sealed tube, press on the piston, and the liquid is forced backward, leaving a column of air in the tube beyond the needle-point. Why is this? It is a law of liquids that, if left alone, they assume a spherical form. When the first drop of liquid comes to the point of the needle it becomes spherical, touches the walls of the tube, sealing in the column of air beyond. This is likewise true in root-filling.

It will be seen readily, therefore, that these sealed tubes can be filled only by working the filling material in with an instrument. Here molecular attraction, or adhesion, comes to our rescue. By using a material between which and the side of the tube there is adhesion we succeed. By drawing the broach backward and forward, we carry some material in each time that adheres to the walls and that which is already in. Thus we gradually extract the air and fill the tube. With me it is impossible to do this with material having no adhesion for the tube or with liquids. They are carried back and forward with the broach. You have all noticed these facts in the use of various materials in your daily work. By the use of these glass tubes I can note every movement of the various materials within the canals.

The reading of a paper on salol, and the discussion thereof, at a former meeting, suggested this paper and these experiments. Though I used salol sparingly, yet I was its friend and advocate. This was not because I *knew* of its positive merits, as were claimed for it, but because a number of good men were so loud in its praise. I am completely disappointed,—forced to be so. In large tubes it can be used nicely, but so can every other material that I used. It is the most difficult, according to my observation, to insert into canals of various forms and sizes, as we find them. Being in liquid form, the particles move freely backward and forward with the broach. The air is not extracted, but is mixed, as it were, with the salol, leaving the solid salol in sections. There is so much uncertainty of its action in the tubes, at my hands,

that I would be afraid of it as a permanent root-filling. I would find hope only in its antiseptic property.

A prominent writer and authority on dental subjects places a gutta-percha point on a root-canal plugger, softens it in chloroform, floods the canal with chloroform, then presses the point into the canal. This method is good for filling large tubes, leaving chloroform out of the tubes, however. In small tubes it does not work at all, unless the point be thoroughly softened, then it is simply a case of chloro-percha filling.

In my experiments an excess of chloroform in the tubes thins the filling-material too much, and, after evaporation of the chloroform, does not leave the tube filled. By softening the small end of a gutta-percha point in chloroform, I can press it to the end of tubes nicely. The tube may then be filled with any material. In this way I get positive results.

As we must depend upon the sense of touch on the part of the patient, as to when the canal is full, the conclusion reached in my work on the glass tubes would make it imperative that the canal be not flooded with any medicament, as it is forced ahead of the filling-material proper. This is felt by the patient and we force no more material into the canal. When the liquid is absorbed, the root is unfilled. I believe many roots are thus filled, and the operator congratulates himself on his grand success (?).

With oxychlorid my work was not a success in tubes too small for my broach. It hardened so that I could not force it ahead, to get positive results.

With chloro-percha my experiments were more satisfactory. Results with this material were more positive when the chloro-percha was of the proper consistence. When used thin, even though the canals were quite full, the filling was very defective after the chloroform had evaporated. The gutta-percha was then separated into sections, and even they were not solid. It can be forced into the smallest tubes when quite thick,—almost stiff.

When filling sealed tubes the elasticity of the air and gutta-percha was quite apparent, in that the filling material tended to come out of the tube perceptibly, leaving a small space unfilled. I am inclined to think this same tendency exists in the filling of root-canals. It may be retained, as desired, by cement in the pulp-chamber. The above are all the filling-materials with which I have experimented thus far.

It is needless to say that I find canals in which I am unable to do work satisfactory to myself. We all find them. For the treatment of these we look forward to the mummifier, hoping one may be discovered whose good effects will be permanent.

"THE PRESERVATION OF THE DECIDUOUS TEETH BY MEANS OF CAPS AND CROWNS," by L. Ottofy, D.D. S., Chicago, read at New Jersey State Dental Society, Aug. 1, 1895. The preservation of the deciduous teeth is a subject which presents many difficulties, and for some years past it has been the aim of some of the most conscientious members of the profession to overcome some of these difficulties and to lessen the necessity for the premature removal of these teeth. It is generally conceded that no material improvement in the general structure of the teeth in the human race can take place so long as extraction is one of the most frequent operations resorted to in the treatment of either the temporary or the permanent teeth. There is little question regarding the fact that the present generally bad condition of the teeth is due in a great measure to the neglected condition of the teeth in past generations. From a dento-physical standpoint, the people of to-day are badly demoralized. It seems hardly necessary to refer at length, before this society, to the importance of saving the deciduous teeth until the exact time when by the operation of nature they should be shed. We generally lose sight of the moral influences that are exerted, when the practice of saving the teeth is commenced early in youth. The impressions of early life are apt to be the controlling influences of the adult, and it seems to me that a habit to save could be more easily inculcated than a habit to have teeth extracted. But the principal thing is the opportunity offered to educate the youthful patient, to form early the habit of care and watchfulness over organs whose importance is at this age generally underrated. The profession of to-day can leave no greater heritage to those of the next generation than the one which has for its aim the education of the children in every sense.

We cannot begin too early in life, and if half the attention were given by the dentist to each case of the child that is given under similar circumstances to an adult, much could be accomplished. As it is, children are often turned away with the com-

ment, "It's only a child." Every one realizes that it is much more difficult to treat children successfully than it is to treat the grown; that the operation performed under these difficulties is not always as successful, and hence the difficulties are too frequently met by the forceps. It is the dental profession, and not the laity, who are responsible for the generally accepted idea that children's teeth cannot be filled, or that they should not be filled, and I think it is time that the profession remedy the error of which it is the sponsor.

The same treatment which will save permanent teeth will not always save the deciduous teeth; the conditions are so different that if the operator has not the time or the ability, he will meet it by extraction. It should be placed, however, to the credit of the profession that some of its members early realized the baneful effects of this kind of practice, and that during the past fifty years many crude and unsatisfactory methods of saving these organs have been more or less practiced by them. In this way the practice to destroy the pulp and leave the tooth first originated; this way improved upon by capping the pulp with some devitalizing agent, then filling the cavity and drilling a vent-hole for the escape of gases which might originate. Crude as these practices were, they began to prove that the importance of saving these teeth had been recognized. The practice of bridging across with plastic fillings from one cavity into another in the case of approximal cavities was resorted to, when the difficulty of retaining fillings in these small teeth was recognized. In short, there is no one here who considers the handling of these cases a pleasant part of their practice.

As a result of the necessity for frequent refillings, each time causing a little more pain and cutting away a little more of the tooth, and for the purpose of overcoming the many unsanitary and unwholesome practices resorted to, I have conceived the idea of saving the deciduous teeth by means of crowns and jackets,—a practice which from its simplicity, ease, and permanence is strange not to have been long since recommended. It is about a year ago that I first performed the operation, and I have since then continued it with perfect satisfaction.

In the case of incisors and cuspids of children it is difficult, as a rule, to introduce a satisfactory filling, especially at so early an

age as two or two and a half years. In the first place, the preparation of cavities is painful, the teeth if carious so early in life are exquisitely sensitive, and the most sympathetically disposed operator's patience is sorely tried in doing something satisfactory; hence in the majority of cases the result is a cement filling, often hastily and improperly mixed, hurriedly introduced, and perhaps permeated with moisture before protection against it could be applied. The result is a repetition of the operation at short intervals, sorely trying the abilities of endurance of the restless, wriggling piece of humanity, to say nothing of the increased sensibility occasioned by the repeated cutting away of what little tooth-structure there is.

How much simpler it is to remove only the greater portion of decay, slightly separate the tooth from its neighbors by means of a sand-paper, corundum, or diamond disk, and attach one of these jackets, without taking an impression or carefully fitting it, and cementing it into place. The specimens exhibited will prove how simply and crudely these crowns may be made.

For this purpose I use twenty-four or twenty-two carat gold plate, 34 gauge, or platinum 38 gauge. The pattern is cut out as indicated by the specimen exhibited; it is bent with pliers, pressed with the fingers around the neck of the tooth, and the edges caught with a mite of solder and cemented into place. Fortunately the deciduous teeth are generally more regular, not so closely in contact, less variable in size in different individuals, than the permanent, and are usually of a shape readily adapted for the fitting of these crowns. The articulation quickly accommodates itself to the crown by either the slight displacement of the crowned tooth or of its antagonist. So much of the work is done outside of the mouth, and when done at the chair or within view of the little patient it is a source of amusement and interest instead of dread and pain. I have some of these caps sticking in place, although the restlessness of the little patients required haste in fitting and attachment.

I have never taken kindly to the method of filling deciduous teeth by bridging the filling-material across the interdental space, although I have been forced to practice it for want of any better means of retaining the fillings in place. In the case of the molars, therefore, this practice offers many advantages. Usually it is

better to take an impression in wax, modelling compound, or Melotte's clay, than with the Melotte outfit. Dies and counter-dies are quickly made and a cap struck up. Frequently there is no necessity of shaping the crown, as usually it is unnecessary to extend the cap down on the crown, except for a short distance. It is sufficient if it extends far enough so as to hold it in place. Its purpose is merely to serve as a protection to the underlying cement. It is remarkable with what tenacity these caps will adhere, even in cases where it has been impossible to prevent the moisture from coming in contact with the cement before it has set. For these jackets or half-crowns I find pure gold most satisfactory.

The International Dental Journal for May, 1896.

"NOTES ON FORMIC ALDEHYDE," by J. Morgan Howe, M. D., M. D. S., New York, read before the New York Institute of Stomatology, March 3, 1896. Having been appointed by the president of this Institute a member of the Committee on Materia Medica and Therapeutics, these notes on this comparatively new therapeutic and prophylactic agent will be presented as a partial report from that committee, with the understanding that the other members will make additions to it during the discussion of the subject.

As this substance has already been shown to have very valuable properties for our service, it is well worthy of our study. The results of my own use of it during the past year have been so favorable that I have looked somewhat into its chemical characteristics and its literature. These have increased my interest in it, and have helped establish the conviction that it is destined to be of great service to us in several ways.

Formic aldehyde, or formaldehyde, is a gas, prepared by subjecting methyl alcohol (or wood alcohol) to oxidation. The chemical formula of methyl alcohol is CH_4O , of formaldehyde is CH_2O , and of formic acid is CH_2O_2 . It is a product midway in the process of oxidation between the alcohol and the acid. The first step in the oxygenizing process is effected by the loss of two atoms of hydrogen, and this change is expressed in the word aldehyde, contracted from *alcohol dehydrogenatum*. The next step in the oxygenizing process, which forms the acid, is effected by the addition of an atom of oxygen, as is seen by the formula.

As this gas is readily absorbed by water it is furnished to us in a forty-per-cent. solution, and in this condition is known also as a formalin and as formol. As formalin is quite commonly used as a designation, and is, perhaps, a trifle more convenient, it is not objectionable, excepting its tendency to cause the chemical constitution of the compound to be lost sight of; for aldehydes, being as regular chemical compounds as alcohols or acids, are entitled, as such, to have their regular designations remembered. For this reason I have chosen to use the chemical name at the head of these notes.

Formaldehyde in solution, as we obtain it commercially, is comparable in a way to the solution of ammonia, with which we are all so familiar,—a gas absorbed by water, and capable of being diluted with water to any extent, so that any desired percentage may be obtained in that way.

Although its antibacterial action was noticed by Low in 1886, it has only begun to attract much attention during the last two or three years. Berlioz and Trillat have demonstrated that anthrax bacilli were killed by a dilution of 1 to 50,000, and Drs. Slater and Rideal have shown that the growth of different specific micro-organisms was inhibited by its addition to the media in the proportions of 1 to 5000 up to 1 to 20,000; and soiled cloths from the post-mortem room were rendered sterile by soaking in a one-per-cent. solution.

A one-half-per-cent. solution has been used in surgical operations for irrigating wounds and washing the hands and instruments of the operators, with better results than when other antiseptics were used for those purposes, and it has been used in a similar way in ophthalmic practice. Dr. J. M. Davidson, of England, has recently reported very favorable results from the use of solutions of 1 to 2000 and 1 to 3000 in abrasions of the cornea, and in hypopyon ulcers. It prevents suppuration and relieves pain, producing no irritation in the strength recommended, according to his experience. Whooping-cough has been successfully treated by spraying a one-per-cent. solution over the heads of the patients; and experiments are being made similarly in the treatment of pulmonary consumption.

In bacteriology formaldehyde has been found of great service in the arrest of fixation of development at any desired stage;

and for preserving and hardening anatomical and microscopical specimens it has served the purpose better than either alcohol or Muller's fluid.

This agent has been proved to have such extraordinary disinfecting power, together with non-toxic qualities, that one-half-per-cent. solutions are recommended as fully adequate for the general disinfection of sick-rooms, infected clothing, books, and furniture, by means of spraying apparatus; and for the disinfection and deodorization of vessels, closets, waste-pipes, etc., and their contents, by simply pouring over them. A one-per-cent. solution has been found amply sufficient for almost all disinfecting requirements, and from one-fourth- to three-fourths-per-cent. solutions are strong enough for most purposes. In these latter dilutions Professor Cohn has found it capable of preventing the development of the bacteria of putrefaction, and aqueous infusions thick with bacterial life were cleared by such additions, the dead bacteria sinking gradually to the bottom, and the offensive odor disappearing.

Formaldehyde has been used to some extent as a preservative of milk in Great Britain. It has four times the potency of any other antiseptic commonly used for that purpose. Four or five drops of the forty per-cent. solution have prevented the souring of one hundred cubic centimetres of milk for six weeks. If it has been used for such purposes in this country, the fact does not appear to be generally known, for it was not mentioned by physicians discussing the adulteration of milk, at a meeting specially considering that subject, held last January, in the New York Academy of Medicine.

My attention was first called to formaldehyde, or formalin, by the remarks made by Dr. Louis Jack at a meeting of the Academy of Stomatology, and reported in the *International Dental Journal* for March, 1895; in which he related the cure of a pulpless, irritable tooth, that would not bear stopping up, by means of two applications of this remedy. It appears that Dr. Kirk had spoken of this substance to Dr. Jack. He having learned it from Dr. Mascort, who had treated indiscriminately many cases of alveolar abscess with it, at the St. Louis Hospital, and was quite enthusiastic over its use "as a root-dressing for putrescent cases."

On March 28, 1895, Miss B. (an invalid) called for the treatment of a lower bicuspid that was pulpless, and in that peculiar, irritable condition that will not endure the occlusion of the pulp-canal. The family had been my patients for some years, but this member had been referred to another dentist nearer to her home, because her poor health prevented her from being certain of ability to keep appointments, and this particular tooth had been—at the time of her call—under treatment for three months. The tooth was treated for several days before I recalled the reference to formalin I had read nearly a month before, and during this time various remedies were used with some apparent benefit at first, but later with renewed increase of irritability.

At this time, when convinced that I had gained nothing by what I had done, I looked up the record and obtained some formalin in five-per-cent. solution. The first application was made on cotton in the root-canal, and covered with cotton saturated with sandarach, so that the patient could remove it if necessary. She caught cold next day, and sent word she could not keep her engagement, and I did not see her for nine days. When she called again the dressing was *in situ* as I had placed it, and she had felt no discomfort from it. I renewed the dressing, covering it this time with a temporary gutta-percha stopping, and six days later the root was filled with oxychloride of zinc. This tooth gave no trouble after the first dressing of formalin was placed in the root-canal, and has continued perfectly comfortable and useful until the present time.

I have since had several similar cases to treat, and the application of formalin in five-per-cent. solution has been successful in all but one. The key-note of the remarkable and unique influence of this remedy is struck more clearly, I think, in this particular class of cases than in any other. No other medicament that I know of has such an effect. In the case described at length above, the other dressings used were impotent to enable the tooth to bear occlusion of the vent for more than a few hours at the best.

The exceptional case referred to was a cuspid that had been open and discharging slightly for several years, and careful examination convinced me that there was an opening through the side of the root near the apex.

Since using formalin successfully in the first one or two peculiar cases already referred to, I have gradually used it more indiscriminately in the treatment of the pulpless teeth, without fistulæ, and have found it peculiarly and wonderfully effective in disinfecting them, and removing all tendency to irritation from admission of air, or efforts to cleanse and prepare the root-canals, or from subsequent filling of the roots.

After considerable use of this substance, I discovered that it was possessed of decided deodorizing power, before I had consulted its literature sufficiently to find that this quality is claimed for it, as has been noted above. In one recent case in which I tested it, an offensive molar was treated in the root-canals with electrozone, without removing the bad odor, but a two-and-a-half-per-cent. solution of formalin made it quite free from all offensiveness in a few minutes.

I have not used it in the treatment of alveolar abscesses with fistulæ, but have tested its efficacy a few times in pyorrhœa alveolaris, and found that it seemed to have no special influence to diminish the formation of pus. My judgment of its therapeutic influence on tissues, to which it is applied, is that its special sphere is to allay irritability of the tissue and prevent inflammation and suppuration. It may have greater influence in reducing suppuration, and in favoring a return to normal conditions after pus has formed than I have discovered, and I hope that something more definite on this point will be reported in the discussion of this subject.

It is a powerful irritant, and the warning that Dr. Jack gave in the record before referred to—that is, that it should not be used in greater strength than a five-per-cent. solution—may well be heeded. Its application in root-canals in that dilution will sometimes cause pain, and I have even found it to give evidence of irritation in a two-and-a-half-per-cent. solution. But the pain has always passed away in an hour or two, when the dressing was left in the tooth, and has ceased in a few moments after the removal of the dressing, in those cases that caused complaint at the time. These evidences of irritation have been only in exceptional cases, and I have concluded, from my clinical experience, that it is most likely to cause pain when it is applied in the root-canals of teeth whose pulps have been recently destroyed; for which other dress-

ings would have been better. The inference is that its irritating properties are overcome by chemical action when it is brought into contact with putrescent matter. In my recent use of formalin I have found a two-and-a-half-per-cent. solution answer the purpose so well, both as a deodorizer and disinfectant, that I am inclined to believe that a stronger application is unnecessary. I have disinfected many putrescent pulp-canals with this substance in the two-and-a-half-per-cent. as well as the five-per-cent. solution, and filled the roots at subsequent sittings without the use of any other agent whatever for treatment, and have had remarkably satisfactory results.

In two cases only pain and swelling to a very limited degree followed the filling of the roots, and this I attributed to my own or the patient's anxiety to get the work finished, and off the list; being due rather to an error of judgment in filling too soon than to lack of efficacy in the formalin dressing. Formalin has some coagulating action on albumen, which is apparent even in the action of the two-and-a-half-per-cent. solution a few minutes after its contact with the white of egg. But the coagulating action of the forty-per-cent. solution is very much less decided than pure carbolic acid. Electrozone has no coagulating effect whatever. A five-per-cent. formalin solution added to meat broth,—that had been infected by a broach used in a putrescent pulp-canal, and allowed to become putrid,—showed in a test-tube much more vigor of chemical action and rapidity of clearing of the infection than did a similar test of electrozone added to the same putrescent liquid. I have found formalin to be very efficacious in disinfecting, without causing irritation, those cases of quiescent pulpless teeth whose pulp-cavities demand opening, but are very liable to have pericementitis supervene as a result of such opening.

When I was a young man, I was very much distressed by the evidence that was often presented to me that I had precipitated pain and suffering upon my confiding patients by opening their pulpless teeth. But I found, to my astonishment, that those whom I considered wise men could give me no special light or encouragement on the subject. Indeed, most of them denied that the opening of such teeth was the cause of any special solicitude to them. They applied some medicament which in their hands always prevented trouble, and each one had a different remedy; but

in my hands afterwards none of these agents proved of sure value in preventing inflammation, as the result of opening pulp-canals with putrid contents, that had been closed and were not causing irritation at the time.

Dr. James Truman wrote, in the "American system of Dentistry," 1885, "A dead pulp may remain for years—and it may be for life—very quiet if not exposed by caries, but may, in a few hours, produce violent pericementitis if exposed to the action of the atmosphere. It is, therefore, oftentimes a question in the diagnosis of such a tooth whether the great risk warrants meddling with it at all."

I think there is now a general recognition of the danger attending this procedure, but I fear it is not by any means universal among dentists, and I call attention to it to emphasize the importance of its being recognized, as well as to record the usefulness of formalin as an efficient preventive.

I had not found anything to serve the purpose as well as iodoform dissolved in alcohol and ether until the advent of electrozone. In 1884 I read a short paper on antiseptics, in which I referred to iodoform as the most effective safeguard against inflammation, as a result of opening quiescent pulpless teeth, and until I began to use electrozone as a disinfectant I had not dared to rely upon anything else in such cases. I have used the latter, however, with satisfaction ever since its introduction, and it undoubtedly has a certain soothing and reducing influence on inflamed tissues, besides its antiseptic power.

In exactly what cases, and in what conditions, solutions of formaldehyde will serve better than electrozone or other agents it will take some time to determine. Each remedial agent that we have has its limitations, and each has a sphere of influence that makes it better adapted to certain conditions than anything else would be, but there is no doubt that formaldehyde is a valuable addition to our list of medicaments, and it is probably destined to take the place of most of the prophylactics we have used heretofore. It simplifies and renders easy the sterilization of instruments and of everything that needs disinfection, and there can be no doubt that a one-half-per-cent solution is perfectly efficient for such purposes after the article has been previously cleansed in an ordinary way. Such a solution does no harm to

steel instruments, other than results from the application of water, and Drs. De Buck and Vanderlinden, of Ghent, have found it more efficient than a two-and-a-half-per-cent carbolic or a 1 to 500 sublimate solution.

I have noticed that an antiseptic lotion advertised for a mouth-wash has in the published list of ingredients a 1 to 1000 solution of formaldehyde in a proportion not given. I find that a one-half-per-cent. solution of formaldehyde, if rinsed vigorously about the mouth, produces a stinging sensation, suggesting the effects of capsicum, and even a one-fourth-per-cent. solution does not cease to have a similar effect on the mouth and fauces, although the sensation of astringent action is also perceptible with the latter. As far as antiseptic power is concerned, we may certainly count upon its value here also, but what medicinal effect it will have on the mucous membranes and gum tissues will have to be determined by experimental use.

It is apparent that this substance has a medicinal influence aside from its antiseptic effects, and that a great portion of its value to us depends upon its peculiar medical action. The irritable condition of a pulpless tooth that will not bear stopping up is not amenable to control by antiseptic treatment alone, unless the agent used has also a medicinal influence on the tissues. And the same thing is true regarding the contents of pulp-canals in pulpless teeth that threaten to produce irritation by access of air or germs. The application of the most potent antiseptic is not so certain to avert unfavorable symptoms as is the use of iodoform, which is rather low down in the antiseptic scale, but which has a certain power aside from germicidal action that produces a beneficial effect on living tissue. In other words, the usefulness of medicaments, suitable for the treatment of abnormal conditions of living tissue, cannot be expressed in terms of antiseptic power. The latter has engrossed attention to such a degree during recent years as almost to exclude the fact altogether that almost every agent used has a medicinal or toxic action, which may be beneficial or the reverse.

The preserving and hardening effects on tissues that have been manifested by formaldehyde suggest that it may be found of service in efforts to preserve and make innocuous those dead pulps, or portions of pulps, that circumstances make it desirable or ex-

pedient to leave *in situ*. Any simple and quick means of accomplishing this would result in such a great saving, to both patient and dentist, that all must regard it as a desideratum.

Probably we would all agree in the opinion that no treatment of a pulpless tooth can ever fulfil the requirements of placing it in the safest condition for the longest time, as does the complete filling of the root-canals with an impermeable substance; but there is a possibility of approximation to the ideal condition of safety by some other less arduous and expensive method. Several experimenters and writers have discussed this subject in recent years, and I hope this new agent—formaldehyde—may serve to forward to success efforts in this direction. The teeth of the multitude, who cannot afford either time or money for difficult and expensive operations, need to be saved by simple and inexpensive methods, and I am sure we all sympathize with every effort to render the process of saving teeth easy and simple.

In commending formaldehyde to your attention and study, it is with the conviction that it is to be a very valuable addition to our equipment of therapeutic agents. The limitations of its usefulness will soon be discovered, but at present its value is undoubted in the treatment of foul pulp-canals and irritable apical tissues, and in the disinfection of anything that needs such cleansing.

QUACKERY DEFINED, by Geo. F. Shrad, in *Forum*. Quackery is medical practice commercialized, and therefore prostituted. It thrives because the victims are in the majority and are easily reached by lying advertisements. "What is the proportion of sensible people in this crowd?" asked a patent medicine man of a physician. "About one in ten," was the answer. "I take the nine and leave the one to you," said the quack. This represents the majority which helps to make the quack rich. The nostrums cost almost nothing; but the capital is used in advertising; in making pictures of the idiots and feeble-minded who imagine themselves cured; in placarding fences; in defacing scenery; in publishing manufactured certificates; in ridiculing scientific medicine; in alarming the credulous; in claiming false discoveries; and in vaunting impossible results. But these are the men who make the money. Medicine to them is the nickel-in-the-slot machine. The diagnosis is ready-made to suit every need, and even otherwise sensible people are being educated into the belief that every man can be his own doctor and not have a fool for a patient.

The Dental Digest.

PUBLISHED THE

TWENTIETH DAY OF EVERY MONTH.

Editorial.

ARE THE DENTAL JOURNALS AT FAULT?

We are led to ask this question by the remarks which Dr. W. E. Driscoll makes in his article, on page 311 of this issue. He says:—"This is the longest reference to lining cavities with cement I have ever seen in a dental journal, except what I have contributed during the past nine years. If the general understanding of the matter is as faulty as I take Dr. Palmer's reference to it to be, I am not surprised that no one writes on the subject, or that one would surmise there was no such thing practiced, so far as the dental journals refer to the matter." Again, "The silence of the dental journals on the subject of cement linings for amalgam and gold fillings is one of the wonders of the times."

In our opinion it is not the fault of the journals, but of the dental profession, for, as we have said before, they write very little for a profession. Last month we wrote about the manipulation of amalgam and asked for opinions on the question, and have received just one reply thus far. If the dentists do not write upon a subject the dental journals must not be blamed for not having articles upon that subject, for they are simply the mouth-pieces of the profession.

THE COLLEGE FACULTIES ASSOCIATION.

We showed in another place the importance of the National Board of Examiners, and urged that each state send a good representation. It is not necessary to urge this in regard to the colleges. Their association is better organized and its rules compel each college to send its representative, and while we hear adverse

criticism, we regard this as a wonderful organization for good. In fact, it is hard to conceive what would be the condition of the educational institutions of our profession were it not for the College Faculties Association. As yet it is not perfect by any means, but each year shows a decided improvement, and we hope to live to see the day when a much higher grade of education will be required from the matriculates. In this regard the colleges have absolute control, the profession not knowing or coming in contact with the students until they have entered our ranks as dentists. Therefore, let the colleges look well into this their responsibility, for if they do not, who will decide what the future of our profession shall be?

THE AMERICAN DENTAL ASSOCIATION.

This is the representative organization of the profession. It should therefore have delegates of the best talent from every State and local society in the United States. It should also have, in its section reports, a digest of all the important professional and literary work done by each society during the year. This feature of the work of the American Dental Association has been sadly neglected, most of the societies having apparently no interest or connection, except in having someone come as a delegate. Preparations are being made to have the section work of the Association made much more complete, and to have more time spent in the sections to eliminate much of the crude matter from its proceedings. Therefore, let every dentist interested in the upbuilding of his profession come and bring something of interest with him, so that the American may in reality become the representative association of the profession.

THE NATIONAL BOARD OF DENTAL EXAMINERS.

This body, which is composed of the various State boards of dental examiners, we regard as the most important organization now in existence in the profession, because of the responsibility resting upon it. It has the authority to decide what the qualifications of those entering the profession shall be, as well as the

COLORADO STATE DENTAL ASSOCIATION.

The tenth annual meeting of this Association was held in Denver, June 9-11, 1896. The following officers were elected for the ensuing year:—Pres., J. H. Parsons, D. D. S., Boulder; 1st vice-pres., Sarah May Townsend, D.D. S., Denver; 2nd vice-pres., R. A. McGee, D.D. S., Salida; Cor. Sec'y., J. S. Jackson, D.D. S., Denver; Rec. Sec'y., A. L. Whitney, D.D. S., Denver; Treas., Wm. Smedley, D.D. S., Denver.

The next meeting will be held at Colorado Springs, the second Tuesday in June, 1897.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The twelfth annual session will be held at Saratoga Springs, N. Y., commencing 10 A. M., Monday, August 3rd, and continue in session during the proceedings of the American Dental Association.

It is earnestly requested that all State and Territorial Boards of Dental Examiners will send delegates.

CHAS. A. MEEKER, D. D. S., Sec. and Treas., 29 Fulton St., Newark, N. J.

MINNESOTA DENTAL ASSOCIATION.

The thirteenth annual meeting of the Minnesota Dental Association will be held in Winona, Aug. 19-21, 1896. The Executive Committee decided to change the date from the usual time to the above date. The meeting will be more practical and interesting than ever. Among the social features will be an excursion on the Mississippi River, given by the Winona County Dental Society. A cordial invitation is extended to all to join with us.

H. L. CRUTTENDEN, D. D. S., Sec'y, Northfield, Minn.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The annual meeting of the National Association of Dental Faculties will be held at Saratoga Springs, on Saturday, August 1st, at 10 o'clock A. M. The Executive Committee will meet on Friday, July 31st, at 10 o'clock A. M. Those having matters to bring before this Committee will do well to bear this meeting in mind. The work of this Committee is preparatory to that of the general meeting. All communications requiring the attention of the Executive Committee should be sent to the Chairman.

DR. J. TAFT, Chairman of Exec. Com., Berkshire Bldg., Cincinnati.

DR. LOUIS OTTOFY, Secretary, Masonic Temple, Chicago.

power to make the requirements for practitioners who wish to practice in another State. Furthermore, it is the duty of this body to make the rules which regulate the colleges and to decide which colleges are reputable. As all its rulings are sustained by the courts, its word is law.

Do the various state boards realize what a responsible organization their representatives compose, under the name of the National Board? We fear that they do not fully comprehend its importance, yet it can do more to improve the character of our profession than any other organization. Therefore, each State board should send its best representatives, and so make the National board even more of a power for good than it is now.

Notices.

NEW JERSEY STATE DENTAL SOCIETY.

The twenty-sixth annual session of the New Jersey State Dental Society will be held in the "Auditorium," at Asbury Park, N. J., July 29-31. Essays on subjects pertaining to dentistry will be read by the most eminent men in the profession. Twenty-seven clinics on the afternoon of the 29th will be of the utmost interest. Fifteen hundred feet of space for exhibitions already nearly filled. Many new electrical appliances exhibited for the first time. New Jersey headquarters, "The Columbia," rates, \$2.50 to \$3.00 per day. Board in the Park from \$8.00 to \$45.00 per week. Cut off the time and come and see us.

CHAS. A. MEEKER, D. D. S., Sec'y.

THE AMERICAN DENTAL ASSOCIATION.

The annual meeting will be held at Saratoga Springs, N. Y., July 31-Aug. 6, 1896. The Grand Union Hotel will be the head-quarters, and the meetings will be held in the hall of this hotel. Committee rooms and ample space for exhibits will also be provided. The ball-room and concert hall are placed at our disposal.

Dr. Doolittle of Saratoga, has kindly consented to act as one of the local committee, and will give any information or assistance in his power.

The Railroads have granted the usual fare and one-third on the *certificate* plan. Pay full fare in going and *be sure* and take a *receipt* when you buy your ticket, as you cannot obtain the one-third rate in returning unless you hold a receipt.

J. N. CROUSE, Chicago, Chairman Ex. Com.

as in furunculus, toothache, tic or inflammation anywhere. Whatever may be the effect of chloride of sodium applied to an exposed pulp, we are rather sceptical as to the salt reaching an inflamed periodontal membrane unless applied as a root dressing through the apical foramen!—*Brit. Jour. Dent. Sc.*

COCAIN HYDROCHLORATE IN DENTAL NEURALGIA.—According to the *Lyons Medical*, for January 5, odontodol is the name given in Italy to a new preparation which has proved very efficient in the treatment of dental neuralgia. The formula is as follows:

Cocain hydrochlorate.....	15 parts,
essence of cherry-laurel.....	15,
tincture of arnica.....	150,
sol. of ammonium acetate.....	300.

If the pain is caused by caries, a piece of cotton saturated with the liquid is put into the cavity of the tooth; if it is caused by inflammation of the pulp, the mouth should be washed out with a solution consisting of one part of odontodol diluted with two parts of a tepid decoction of linseed. Finally, if the pain extends to the entire jaw, the painful surface should be thoroughly rubbed with several drops of odontodol, after rinsing the mouth with the solution.—*Journal American Medical Association.*

SYPHILITIC TEETH WITH ICHTHYOSIS.—An interesting case of ichthyosis in a patient exhibiting characteristic syphilitic teeth is recorded (*Loire Medicale*) by Dr. Roussel. The patient was a girl aged 21. The upper and lower incisor and canine teeth presented characteristic defects. The stem of the whole body was mal-nourished, dry, rough, and inelastic. The outer aspects of the arms were covered with small projections due to hypertrophy of papillæ. The summits of these projections were crowned by horny pellicules, which could be rubbed off. The legs, particularly externally, presented a similar condition, being covered with small papules, of which the summit was formed by a scale. Desquamation existed also at many points where papillary projections were not present. If a considerable extent of skin were drawn together by the hands it showed very plainly the ichthyotic appearance—that is, a great number of lozenge-shaped markings became visible, with their centre occupied by an epidermic lamella. On the body were numerous small cicatrices, and one larger on the sacral region, white, elongated and adherent. The smaller of these markings were attributed to a previous attack of small-pox. This is the second case in which Dr. Roussel has noticed ichthyosis and syphilitic teeth in the same subject.

IS THE HUMAN RACE DETERIORATING?—The February number of the *North American Review* contains an article upon this subject which is rich in statistical lore. Out of it we extract some facts that are of interest to medical readers. The author shows by the statistics of births, deaths, and marriages of the seven principal European nations, that the birth rates in these nations have declined, notably since 1880, but that the death rate has declined still more, so that the surplus of births over deaths is rising. It is also shown that marriage-rates have declined since 1880, but that the number of children to a

INDIANA STATE DENTAL ASSOCIATION.

The Indiana State Dental Association will hold its thirty-eighth annual meeting in the new Indiana Dental College building, at Indianapolis, commencing Tuesday, June 30th, at 10 A. M. All members of the profession are cordially invited to attend.

The State Board of Dental Examiners will meet at the same time and place.
M. A. MASON, D. D. S., Sec'y, Fort Wayne, Ind.

News Summary.

ST. LOUIS, June, 1896.

Editor of Dental Digest.

DEAR DOCTOR:—I have just received news of the death of Dr. C. W. Spaulding, at Riverpoint, R. I., June 9th, 1896, aged 82 years.

Yours truly, WM. N. MORRISON.

WANTED.—Position as operator in private practice. Chicago preferred. Can guarantee satisfaction. Address Dr. E. P. Binford, 3510 Prairie Ave., Chicago.

UNDESIRABLE IMMIGRANTS.—Doctor J. W. Achorn communicates to the *Dietetic and Hygienic Gazette* some interesting facts as to the physical condition of some of the immigrants admitted to this country from abroad, practically without examination—facts which should claim serious consideration by our national law-makers. He says that a steamer on which he returned from Europe brought 600 Italians, Hungarians, Polish and Hungarian Jews, Russians, Bohemians, Arabs and other steerage passengers, among whom were seven lame and eighteen deformed. He examined 153 of the total 600, and found four cases of advanced phthisis, six of inherited syphilis, two of fœtid abscess, three of syphilis, one of delirium tremens, nine of rickets, "any number of skin diseases parasitical and otherwise," two of favus of the scalp, and three of chronic ulcer of the leg. Only one of the 600, a man with cataract of the left eye due to syphilis, was refused admission to the country.—*American Journal of the Medical Sciences.*

SALT FOR TOOTHACHE.—It is surprising that medical men should not take a little trouble and inform themselves as to the different pathological conditions which give rise to the varieties of "toothache." Like the general public they are not inclined to differentiate a variety but simply recognise the general term. For instance, one practitioner having written to a medical paper to recommend the insufflation of common salt to relieve the pain, another follows with his explanation as to the *rationale* of the process. He thinks it to be one of those effects of thinning or defibrinating stagnant blood which salt shows as well as salicylate of soda, antipyrin, potassium iodide, etc. Given to a blood-giver in a case of transfusion, these drugs all prevent clotting in the canula; and there is no pain without congestion and consequent *stasis* of blood,

marriage has increased, and that the natural increase of population has proceeded with greater rapidity in the last ten years than it did before. He also shows that in the United States there has been a steady decline in the rate of increase of population, but that the annual increase of American-born population has been a uniform one up to the last decade, when it fell to $17\frac{1}{2}$ per thousand. This declining ratio has been coincident with a very great increase of the city population and a decrease in the relative number of children. One striking fact is brought out, namely, that in the United States there are more children per thousand inhabitants than in any European country; thus the number of persons under 15 years of age per thousand inhabitants in this country is 368, while in France, which furnishes the other extreme, it is only 266. Still another fact, which is not of so pleasant a character, is that the span of life in the United States is shorter than in Europe. Comparatively few people in the United States pass the age of 60. Thus, the number of persons 60 years or more of age among 1,000 persons over 20 years of age is in the United States 107, while in England it is 134, and in Ireland 196. It seems, therefore, that in the United States the rate of increase in population is diminishing, that the number of children per thousand is greater than in any other country, but is decreasing, and that old age is not so often reached as in other lands.—*Medical Record*.

Obituary.

IN MEMORIAM.

Think not of the tearful parting,
For beyond death's turbid tide,
We will some day meet our Brother,
Heaven is on the other side.

Death is always an unbidden guest, but when it comes and takes from us one of our friends, in the prime of manhood, in the midst of usefulness, its presence is indeed unwelcome.

Dr. W. F. Bradner graduated from Ann Arbor, Mich., in the spring of 1881, and entered actively upon the practice of his chosen profession. In 1888 he moved to this city and soon took high rank among his professional brothers in Denver.

He was one of the active members of this association, and was present at every meeting until last year, when failing health prevented his attendance. His genial, affable manner, his modest, manly bearing, his intelligent, skillful operations, soon brought him a lucrative practice, and none of our associates endeared himself more lovingly and firmly to us than did Dr. W. F. Bradner.

Today we miss his presence and wise council, for he is gone, gone higher where he waits his loved one on the other shore.

Let us keep green in our hearts his many virtues, while we strive to emulate his worthy example.

J. M. NORMAN, D.D. S.	} Committee.
W. S. JACKSON, D.D. S.	
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